



No Mix Open Cell *Spray Polyurethane Foam Insulation*

Product Description:

PROFILL is a unique ocsfp Insulation in the industry as it employs a proprietary blend of formula that insures adhesion to substrates and itself. The product is manufactured on site by certified installers using specialized equipment that mixes a two component foam system. PROFILL is yellow in color and sprays excellent in warm or freezing conditions.

Performance Benefits:

- **Zero Ozone Depleting** blowing agents
- **New Reaction Technology** – combining high quality raw ingredients with the newest technology which provides consumers with a high quality environmentally friendly low odor spray foam
- **Covers and Seals Completely** – PROFILL is a thermal resistive material. This foam system is manufactured to fill complex cavity spaces to effectively minimize the potential for air leakage.
- **ISO Certified Installers** – all installers are required to be trained by PROFOAM
- **Technology and Experience** – With the most listed products and the largest variety of spray foam products in the USA, PROFOAM offers superior innovative technology and over 20 years experience in urethanes. Being a American owned and operated business Profoam Corp.. understands the challenges of the North American climate and formulates its products accordingly.
- **Quality manufacturing and Consistency-** PROFILL is produced in a state of the art ISO 9001 certified manufacturing facility. Ensuring consistent quality products every time.

Applications:

PROFILL is recommended for use in these typical areas of construction:

- Residential Interior Construction: wall enclosures, ceilings, interior foundation, attic, crawl space, cathedral ceiling, rim joists etc.
- Industrial construction: Wall enclosures including steel, above or below grade, underside of deck etc.

Commercial interior construction: walls, foundation walls and the underside of roof decks Ductwork, pipes and a multitude of specialized applications



Profile Typical Physical Properties:

| Attribute | Test Method | Results |
|------------------------------------|--------------------------|--------------------------------|
| Core Density | ASTM D1622 | 0.45lb/ft ³ |
| Water Vapour Perm. 50 mm sample | ASTM E96 | 1580ng/(Pa·s·m ²) |
| Flame Spread | CAN/ULC S102 ASTM E84 | 210 |
| Flame Spread | CAN/ULC S127 | 315 |
| Dimensional Stability | ASTM D2126** | -29C, 80C, 0.0% |
| Volume % (28 Days) | | 70C 95 +-3% R.H -0.1% |
| Tensile Strength | ASTM 1623 | 3.3 psi |
| Open cell content | ASTM D2856 | 100% |
| Water Absorption | ASTM D2842 | 17.4% |
| Volatile Organic Emissions | CAN/ULC S774 | PASS |
| Aged Thermal Resistance | ASTM C518 90 day aged | R-3.5 @ 25mm RSI .62 @ 25mm |

All testing performed by an accredited independent third-party test Facility*
Dimensional Stability was tested without a substrate**

Application Information:

STORAGE RECOMMENDATION

All material provided by Profoam are to be sealed until ready for use. To ensure proper longevity of the products unopened materials should be indoors within a temperature range of (60-75 °F). Please see chart below for shelf life of materials:

| | PROFILL Part B Resin | Insulthane ISO part A |
|--|----------------------|-----------------------|
| Shelf Life | 6 months | 12 months |
| Storage Temperature Recommendations | (60-75 °F) | (60-75 °F) |

Health and Safety Handling Recommendations:
PRECAUTIONS/LIMITATION:

Like many construction materials spray polyurethane foam is a combustible product. Therefore Installers and occupants are to take precautions and safety measures to ensure the foam does not come into contact with any heat emitting devices. Once application is completed foam shall be protected with a thermal barrier in accordance with the local building code requirements for a suitable thermal barrier. (drywall)

- The product must be applied on-site by qualified installers trained and approved by Profoam Corporation
- As specified by the manufacturer, the product must be manufactured on-site by qualified installers trained and approved by Profoam Corp
 - The product can be installed in new or retrofit constructions. In either case, the product must be installed in open cavities in the following locations in a wood-frame construction
 - exterior walls including perimeter joists;
 - cathedral ceilings with a vented air space
 - floors separating living spaces from a garage;
 - cantilever overhang floors; and
 - interior below-grade foundation walls.
 - The building envelope where the product is installed must conform to the requirements of the NBC for vapour barriers, air barriers, and damp proofing (interior below-grade walls).
 - For retrofit applications whereby there may be occupants in the unaltered part of the building, the qualified installer must ensure that the spraying area is isolated and negatively pressurized by using an exfiltration rate of 0.3 air changes per hour for at least one (1) day. An independent toxicological assessment determined that this ventilation rate must also be in effect for one (1) day before occupancy is permitted in the newly insulated suite.
 - The sprayed material should completely cover the surfaces between the studs, joists and other framing members. The surfaces to be covered should be clean, dry, and not covered in frost, oil, grease, dust or other unsuitable material.
 - The interior side of the applied semi-flexible polyurethane insulation must be covered with an approved thermal barrier
 - The insulation must be kept away from heat-emitting devices, such as recessed light fixtures and chimneys, at the minimum distance required by building regulations and safety codes.
 - The maximum in-service temperature of the insulation must not exceed 180°F.

Section 1: IDENTIFICATION

GSH Product Identifier: Profill Part A
Other means of Identification: Polymeric MDI

Relevant Identified uses of the substance or mixture and uses advised against

Product Use: Component of a Foam Insulation System
Area of Application: Industrial or residential applications
Supplier/Manufacturer: Elastochem Specialty Chemicals Inc.
37 Easton Road
Brantford, Ontario N3P 1J4
Phone (519) 754-1678 Fax (519) 754-4487
Emergency Telephone #: Chemtrec Emergency Number: 800-424-9300

Section 2: Hazard IdentificationGHS Classification:

Acute toxicity (Inhalation): Category 4
Specific target organ toxicity - single exposure: Category 3 (Respiratory system)
Respiratory sensitization: Category 1
Specific target organ toxicity - repeated exposure: Category 1 (Respiratory Tract)
Skin irritation: Category 2 Skin sensitization: Category 1
Eye irritation: Category 2B

GHS label elements

Hazard Pictograms:



Signal word: Danger

Hazard statements: Harmful if inhaled.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes skin irritation.
May cause an allergic skin reaction. Causes eye irritation.
Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements: Prevention: Avoid breathing dust, mist, gas, vapors or spray. Do not eat, drink or smoke when using this product.

Wash skin and face thoroughly after handling. Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves. In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see section 8 of the SDS.

Section 3: Composition/information on ingredients

Hazardous Components

| Weight Percent | Components | Cas Number | Classification |
|----------------|---|------------|--|
| 50-60% | Polymeric Diphenylmethane Diisocyanate (pMDI) | 9016-87-9 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract |
| 35-45% | 4,4'-Diphenylmethane Diisocyanate (MDI) | 101-68-8 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract. |
| 1-5% | 2,4'-Diphenylmethane Diisocyanate (MDI) | 5873-54-1 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |
| 0.1 - 1% | 2,2'-Diphenylmethane Diisocyanate | 2536-05-2 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 |

| | | | |
|--|--|--|---|
| | | | Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |
|--|--|--|---|

Section 4: FIRST AID MEASURES

Description of necessary first aid measures

Skin: Clean exposed area with soap and lukewarm water. Remove contaminated clothing. Seek medical attention. Wash contaminated clothes before re-use.

Eyes: Immediately flush thoroughly with water for at least 15 minutes lifting eye lids occasionally. Get medical attention.

Inhalation: Remove victim to fresh air; extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.

Ingestion: Do Not induce vomiting. Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention immediately.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Acute: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible. Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing. May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician: Notes to Physician Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate. Specific Treatments: None
Protection of first aiders: Contact a doctor or poison control center.

Section 5: FIRE FIGHTING MEASURES

Means of Extinction: Suitable extinguishing media: Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

Specific hazards arising from the chemical: During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Special protective equipment and precautions for fire-fighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk without suitable training. Fire fighters should wear appropriate protective equipment and self contained breathing apparatus. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: ACCIDENTAL RELEASE MEASURES**Spill Procedure:**

Clean up personnel must wear protective equipment to prevent contact with the product. Evacuate the area of all unnecessary personnel. Stop spill at source. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc..). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat

application of absorbent material until all liquid has been removed from the surface.

Decontaminate the spill surface area using a neutralization solution (see list of solutions on the SDS); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container.

Apply lid loosely to metal waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralization process). With the lid still loosely in place, move the container to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, provincial and local regulations.

Neutralization solutions include:

- Easy Off Grill and Oven Cleaner or Easy Off Fume Free oven cleaner
- A mixture of 90% Fantastic Heavy Duty All Purpose Cleaner and 10% household ammonia.

It may take 2 or more applications of the neutralization solution to decontaminate the surface.

Personal Precautions, protective equipment and emergency procedures:

Wear suitable protection clothing, gloves and eye/face protection. Ventilate the area.

Environmental precautions: Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Methods and material for containment and cleaning up:

Suitable material for taking up: inert absorbing material, e.g., vermiculite, kitty litter, Oil-Dri®, etc. Pick up and transfer to properly labelled containers. Ventilate the area.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Protective Measures:

Put on appropriate personal protective equipment. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes, inhalation of vapours and mists. Use only with adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear appropriate respirator when ventilation is inadequate. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated

inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Keep in the original container and keep tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands before, eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:

Store product in accordance with local regulation. Store product at room temperature away from heat and moisture. Store product in original container protected from direct sunlight in a dry, cool, and well ventilated area with local exhaust. Keep away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTIONS

Control Parameters

| Component | Cas Number | Exposure | Concentration |
|---|------------|----------|------------------|
| 4,4'-Diphenylmethane Diisocyanate (MDI) | 101-68-8 | ACGIH | TWA 0.005 ppm |

Appropriate Engineering Controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, etc) below recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice.

Individual Protection Measures

Eye Protection: When directly handling liquid product, eye protection is required, such as chemical safety goggles or chemical safety goggles in combination with a full face shield when there is a greater risk of splash.

Protection for skin: Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanate.

Protection for hands: Gloves should be worn. Nitrile rubber showed excellent resistance, butyl rubber, neoprene and PVB are also effective.

Respiratory Protection

Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134).

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--|
| Appearance & Colour: Brown Liquid | Vapour Pressure: < 0.0001 mmHg @ 25 °C (77 °F) |
| Physical State: Liquid | Vapour Density: Not available |
| Odour: Musty | Relative Density: 1.234 g/cm ³ @ 20°C (68°F) |
| Odour Threshold: Not available | Solubility in water: Insoluble - Reacts slowly with water to liberate CO ₂ gas |
| pH: Not applicable | Partition coefficient: Not available |
| Melting Point/Freezing Point: Not applicable | Auto Ignition Temp: Not available |
| Initial Boiling Point: 208°C (406.4°F) | Decomposition Temp: Not available |
| Flash Point: 198°C (388.4°F) | Dynamic Viscosity: 150 - 250 mPa.s @ 25°C (77°F) |
| Evaporation Rate: Not available | Specific Gravity: 1.24 @ 25°C (77°F) |
| Lower Flammable Limit: Not available | Explosive Properties: Not available |
| Upper Flammable Limit: Not available | |

Section 10: STABILITY AND REACTIVITY

Chemical Stability: This is a stable material at room temperature.

Possibility of Hazardous Reactions: Contact with moisture, other materials that react with isocyanates, or temperatures above 350°F(177°), may cause polymerization.

Conditions to avoid: Avoid high temperatures and heat.

Incompatibility (Materials to avoid): avoid water, amines, strong bases, alcohols, copper alloys.

Hazardous decomposition Products: By Fire and high heat: Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, isocyanate, isocyanic acid, other undetermined compounds.

Section 11: TOXICOLOGICAL INFORMATIONInformation on toxicological effects**Toxicological Information of the mixture:**

Acute Oral Toxicity: LD50: > 2000 mg/kg (rat, male/female)

Acute Inhalation Toxicity:

LC50: 0.49 mg/l, 490 mg/m³, 4 h, aerosol (rat)

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:

LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

Skin Irritation: rabbit, slightly irritating.

Repeated Dose Toxicity: 90 Days, inhalation: NOAEL: 1 mg/m³, (rat, Male/Female, 6 hrs/day 5 days/week). Irritation to lungs and nasal cavity.

2 years, inhalation: NOAEL: 0.2, (rat, Male/Female, 6 hrs/day 5 days/week). Irritation to lungs and nasal cavity.

Mutagenicity:

Genetic Toxicity in Vitro:

Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity:

Rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week
LOAEL: 6mg/l

Polymeric MDI has been classified as IARC Group 3 ("Not classifiable as to its carcinogenicity to humans") (1999) indicating there is inadequate evidence available to describe the carcinogenic potential. Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies in rodents, pMDI produced tumors only at the highest exposure level of 6 mg/m³. This exposure level is significantly above the TLV for MDI (0.051 mg/m³). Based on the weight of the evidence, a determination of not classified for carcinogenicity is justified.

Developmental Toxicity/Teratogenicity:

Rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL

(teratogenicity): 12 mg/m³, NOAEL (maternal): 4 mg/m³
No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

Toxicological Information of 4,4'-Diphenylmethane Diisocyanate (MDI):

Acute Oral Toxicity: LD50:>7616 mg/kg(rat) (OECD Test Guideline 401)

LC50: 0.368 mg/l, 4 h, dust/mist(rat, male) (OECD Test Guideline 403)
The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:

LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)
Studies of a comparable product.

Skin Irritation:

rabbit, Draize Test, Slightly irritating
human, irritating

Eye Irritation:

rabbit, Draize, Moderately irritating
human, irritating

Sensitization:

Skin sensitization (local lymph node assay (LLNA)):: positive (Mouse, OECD Test Guideline 429)

Respiratory sensitization: positive (Guinea pig)

Repeated Dose Toxicity:

90 Days, inhalation: NOAEL: 0.3 mg/m³, (rat, Male/Female, 18 hrs/day, 5 days/week)

Irritation to lungs and nasal cavity.
(Human)

Irritation to lungs and nasal cavity.

Mutagenicity:

Genetic Toxicity in Vitro:

Ames: (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:

Micronucleus Assay: (Mouse)negative

Micronucleus test: negative (rat, male, Inhalative
(exposure period: 3x1h/day over 3 weeks))

negative

Carcinogenicity:

rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week negative

Other Relevant Toxicity Information:

May cause irritation of respiratory tract.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity effects:

Acute and prolonged Toxicity to Fish: LC0: > 1,000 mg/l (Danio rerio (zebra fish), 96 h)

LC0: > 3,000 mg/l (Oryzias latipes (Orange-red killifish), 96 h)

Acute toxicity to aquatic invertebrates:

EC50: > 1,000 mg/l (Water flea (Daphnia magna), 24 h)

Toxicity to Aquatic Plants:

NOEC: 1,640 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to microorganisms:

EC50: > 100 mg/l, (activated sludge, 3 h)

Biodegradation: 0%, Exposure time: 28 days, ie. Not degradable

Bioaccumulative Potential: Oncorhynchus mykiss (rainbow trout), exposure time: 112 days, <1, BCF does not bioaccumulate.

Mobility in Soil: Not available

Other adverse effects: Not available

Section 13: DISPOSAL CONSIDERATIONS

Disposal Procedure:

Comply with Federal, provincial, and local regulations on reporting releases.

Consult your local or regional authorities.

Section 14: TRANSPORT INFORMATION

TDG (TRANSPORTATION OF DANGEROUS GOODS) CLASSIFICATION: Not regulated

Class: Not regulated

Environmental Hazards: Not available

Special Precautions: Not available

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16: OTHER INFORMATION

References: Canadian Guide of the Law and Regulations of the Transportation of Dangerous Goods. Controlled products regulations. Manufacturer's Safety Data Sheet.

Regulatory Affairs Department: 519-754-1678

DATE: November 24, 2022

REVISION 1

PREPARED BY: Regulatory Affairs group,
Elastochem Specialty Chemicals Inc.

Section 1: IDENTIFICATION

GSH Product Identifier: Profill Part B
Other means of Identification: None

Relevant Identified uses of the substance or mixture and uses advised against

Product Use: Component of a Foam Insulation System
Area of Application: Industrial applications
Supplier/Manufacturer: Elastochem Specialty Chemicals Inc.
37 Easton Road
Brantford, Ontario N3P 1J4
Phone (519) 754-1678 Fax (519) 754-4487
Emergency Telephone #: Chemtrec Emergency Number: 800-424-9300

Section 2: Hazard Identification**Classification of the substance or mixture:**

Acute Toxicity (Oral) - Category 4
Acute Toxicity (Inhalation) - Category 4
Skin Corrosion/Irritation - Category 1
Eye Damage/Irritation - Category 1
Specific Target Organ Toxicity, Single Exposure - Category 3
(Respiratory).

GHS label elements

Signal word: Danger
Pictogram:



Hazard Statements: Harmful if swallowed.
Harmful if inhaled.
Causes severe skin burns and eye damage.
May cause respiratory irritation.

Precautionary statements:

Prevention: Avoid breathing vapours/spray
Use in a well ventilated area
Wash thoroughly after handling
Wear protective gloves

This material is considered hazardous by the OSHA Hazard Communication Standard.

Section 3: Composition/information on ingredients

Substance/mixture: Mixture

Other means of identification: Not available

| Ingredient Name | Concentration | Cas # | Exposure Limits | LD50/LC50 |
|---|---------------|-----------|-----------------|--|
| Dimethylamino-ethoxyethanol | 1%-5% | 108-01-0 | Not available | 2337mg/kg (rat-oral)/ 1000mg/l 4hr (rat-inhalation) |
| 1,3-Propane diamine N'-(3-(dimethylamino-propyl)-N,N-dimethyl | 3%-7% | 6711-48-4 | Not available | >1.25g/kg (rat-oral) / Not determined |

Section 4: FIRST AID MEASURES

Description of necessary first aid measures

Skin: Clean exposed area with soap and warm water. Continue to rinse for at least 10 minutes. Remove contaminated clothing. Wash clothes before reuse. Seek medical attention if irritation persists.

Eyes: Immediately flush thoroughly with water for at least 15 minutes lifting eye lids occasionally. Seek medical attention.

Inhalation: Remove victim to fresh air; give artificial respiration if not breathing. Seek medical attention.

Ingestion: Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting. Seek medical attention immediately.

Most important symptoms/effects, acute and delayedPotential acute health effects

Skin Contact: Causes severe burns. Contact may cause redness, swelling and a painful sensation.

Eye Contact: Causes irritation, redness, tearing, and blurred vision and/or eye damage.

Inhalation: Product may give off vapour that is irritating to the respiratory system.

Ingestion: Harmful if swallowed, may cause gastrointestinal, nausea, vomiting and diarrhea.

Delayed and Immediate effects and also chronic effects from short and long term exposure

Short Term Exposure: Not available

Long Term Exposure: Chronic skin contact with low concentrations may cause dermatitis.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician: Treat symptomatically.

Specific Treatments: None

Protection of first aiders: No action shall be taken involving any personal risk or without suitable training. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Section 5: FIRE FIGHTING MEASURES

Means of Extinction: Use extinguishing agent suitable for the surrounding fire. Suitable extinguishing media: Use dry chemical, Carbon Dioxide, water spray or alcohol resistant foam.

Specific hazards arising from the chemical: Carbon oxides, nitrogen oxides, dense black smoke. Burning produces irritant fumes.

Hazardous combustion products: May produce carbon dioxide, carbon monoxide, oxides of nitrogen.

Special protective equipment and precautions for fire-fighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk without suitable training. Fire fighters should wear appropriate protective equipment and self contained breathing apparatus with a full face piece operated in positive pressure mode. Move undamaged containers from immediate hazard area if it can be done safely.

Section 6: ACCIDENTAL RELEASE MEASURES

Spill Procedure:

Clean up personnel must wear protective equipment to prevent contact with the product. Evacuate the area of all unnecessary personnel. Stop spill at source. Use inert absorbent material such as sand, clay, earth or floor absorbent to clean up spill. Shovel into drums.

Personal Precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Wear personal protection equipment. Remove persons to safety. Do not breathe vapours or spray mist.

Methods and material for containment and cleaning up:

Suitable material for taking up: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Wash with plenty of water.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Protective Measures:

Put on appropriate personal protective equipment. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Use only with adequate ventilation. Wear appropriate respirator. Keep in the original container and keep tightly closed when not in use.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands before, eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:

Store product in accordance with local regulation. Store product at room temperature away from heat and moisture. Store product in original container in a dry, cool, and well ventilated area with local exhaust. Keep away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTIONS**Appropriate Engineering Controls**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, etc) below recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Do not breathe dust/fume/gas/mist/vapours.

Individual Protection Measures

Eye Protection: When directly handling liquid product, eye protection is required, such as chemical safety goggles or chemical safety goggles in combination with a full face shield when there is a greater risk of splash.

Protection for skin: Avoid all skin contact. Wear protective clothing. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact.

Protection for hands: Chemical resistant, impervious gloves complying with an approved standard should be worn at all times when handling this product. For example, nitrile rubber, butyl rubber, neoprene and PVB.

Respiratory Protection: Spraying increases the risk of hazardous exposure. In atmospheres where the material is sprayed, workers should avoid contact with aerosols through proper engineering controls such as exhaust ventilation and proper protective equipment such as a full face air supplied respirators.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|---------------------------------|
| Appearance & Colour: Clear Amber Liquid | Vapour Pressure: Not available |
| Physical State: Liquid | Vapour Density: Not available |
| Odour: Light ammonia | Relative Density: Not available |
| Odour Threshold: Not available | Solubility in water: Miscible |
| pH: 11.0 | Partition coefficient: Not |

| | |
|---|---|
| | available |
| Melting Point: Not available Freezing Point: 0°C | Auto Ignition Temp: Not applicable |
| Initial Boiling Point: 212°C | Decomposition Temp: Not available |
| Flash Point: Not applicable | Viscosity: 500-1000 cps (at 20°C) |
| Evaporation Rate: Not available | Specific Gravity: ~1.15 g/cm ³ |
| Lower Flammable Limit: None | |
| Upper Flammable Limit: None | |

Section 10: STABILITY AND REACTIVITY

Chemical Stability: This is a stable material at room temperature.

Possibility of Hazardous Reactions: Not available.

Conditions to avoid: High temperatures, open flames and sparks. Do not use in areas without adequate ventilation.

Incompatibility (Materials to avoid): Reacts with strong oxidizing agents.

Hazardous decomposition Products: Oxides of nitrogen and carbon. Other potentially toxic fumes.

Hazardous Polymerization: Polymerization will occur in contact with isocyanates.

Section 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects

Acute Toxicity:

| Ingredient Name | LC50 | LD50 | LD50 |
|---|---|------------------------|---------------|
| 1,3 Propanediamine, N' (3-dimethylamino)propyl)N,Ndimethyl- | Not available | 1620ug/kg Oral, rat | Not available |
| Dimethylaminoethanol 2- | 6.1mg/L 4 hours, (inhalation, rat) | 1803mg/kg Oral, rat | Not available |

Irritation:

Skin Irritation: Causes severe skin burns.

Eye Irritant: Causes serious eye damage.

Sensitization:

Skin Sensitization: Not expected to be a skin or respiratory sensitizer.

Repeated dose toxicity: No information available

Carcinogenicity: No ingredients are listed as carcinogens by ACGIH and IRAC.

Mutagenicity: No information available.

Reproductive Effects: No information available.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available.

Persistence and Degradability: Not expected to be rapidly biodegradable.

Bioaccumulative Potential: Not available.

Mobility in Soil: Not available

Other adverse effects: Not available

Section 13: DISPOSAL CONSIDERATIONS**Disposal Procedure:**

Comply with Federal, provincial, and local regulations on reporting releases.

Consult your local or regional authorities.

Section 14: TRANSPORT INFORMATION

TDG (TRANSPORTATION OF DANGEROUS GOODS) CLASSIFICATION: Not regulated

Class: Not regulated

Packing Group: Not regulated

Special Precautions: Not available

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16: OTHER INFORMATION

References: Canadian Guide of the Law and Regulations of the Transportation of Dangerous Goods. Controlled products regulations. Manufacturer's Safety Data Sheet.

Regulatory Affairs Department: 519-754-1678

DATE: November 24, 2022

REVISION 1

PREPARED BY: Regulatory Affairs group,
Elastochem Specialty Chemicals Inc.



HYBRIDPRO^{1.0} Hybrid Cell Spray Foam Insulation

Water Control

- Rain Control Layer

Excellent Thermal insulation

- Provides R value of 4.3 per/in

Vapour Permeable

- Allows vapour diffusion so wall can dry

Seamless Air Barrier

- Provides a seamless monolithic air barrier at nominal 1.5"

Fast Installation

- Applies like a 2lb spray with no pass limitations

ProFoam's New HYBRID PRO 1.0 Is A Revolutionary Foam Designed For Exterior Use!

- *The FIRST vapor permeable spray foam for exterior use (CCMC Approved 2016-10-27)*
- *1 pcf, open-cell, rigid spray foam insulation*
- *100% water blown - no Hydrofluorocarbons; Lowest ODP and GWP*
- *No limit on application thickness*
- *2x the coverage of conventional 2 pcf spray foams*
- *R value of 4.3/inch*
- *Fully trained and ISO certified installers*

1 Product 4 Control Layers



HYBRIDPRO^{1.0} Hybrid Cell Spray Foam Insulation

| Attribute | Test | Results |
|---|---|---|
| Density | ASTM D1622 | 1.07 lb/ft ³ 17.2 Kg/m ³ |
| Aged Thermal Resistance (90 Day) | ASTM C518 25mm | R 4.3 RSI .75 |
| Thermal Resistance After Ice Lens | NRC TG 072510.09 | 100% Retention |
| Water Vapour Permeation | ASTM E96 25 mm | 1175 ng/ (Pa·s·m ²) |
| Water Vapour Permeation | ASTM E96 50 mm | 949 ng/ (Pa·s·m ²) |
| Initial Tensile Strength | ASTM 1623 | 13.6 psi, pass 94 kPa, pass |
| Tensile Strength After Ice Lens | ASTM 1623 | 103% Retention |
| Water Absorption (% by Volume) | ASTM D2842 | 1.6% |
| UV and Heat Aged Water Absorption (% by Volume) | QUV as per NRC TG 072510.09 | 2.3% |
| Water Penetration Resistance | ASTM E331 as per NRC TG 072510.09 | 700 Pa |
| Flame Spread | ULC S-102 Steiner Tunnel | Flame <500 Smoke <500 |
| VOC Emissions | CAN/ULC S774-09 | Passed |

| Attribute | Test | Results |
|--|-------------------------------|--|
| Dimensional Stability (Volume Change after 28 days) | ASTM D2126 | -20°C, .008% 80°C, -9% 70°C @ 97% RH, -2.3% |
| Fungi Resistance | ASTM C1338 | No Growth |
| Open Cell Content | ASTM D6226 | 99% |
| Compression Strength | ASTM 1621 NRC Performance | 60 kPa |
| Flexural Strength | ASTM C203 NRC Performance | 16.07 kPa |
| Sorption Isotherm (4 day Immersion) | ASTM C1498 NRC Performance | .02 Kg Kg ⁻¹ |
| Water Absorption Coefficient (% by Volume) | ISO 15148 NRC Performance | .00015 Kg m ⁻² s ^{-1/2} |
| Full Scale Wall Test Temperature Limits | NRC TG 072510.09 | 5°C to 40°C |
| Adhesion to Substrates | NRC TG 072510.09 | Various See TG |
| Density Variation | ASTM D1622 NRC Performance | 1% |
| All Tests Performed On Samples With and Without Skin | NRC Performance Assessment | PASS |
| CCMC # | | 14049-R |



Section 1: IDENTIFICATION

GSH Product Identifier: Hybrid Pro Part A
Other means of Identification: Polymeric MDI

Relevant Identified uses of the substance or mixture and uses advised against

Product Use: Component of a Foam Insulation System
Area of Application: Industrial or residential applications
Supplier/Manufacturer: Elastochem Specialty Chemicals Inc.
37 Easton Road
Brantford, Ontario N3P 1J4
Phone (519) 754-1678 Fax (519) 754-4487
Emergency Telephone #: Chemtrec Emergency Number: 800-424-9300

Section 2: Hazard IdentificationGHS Classification:

Acute toxicity (Inhalation): Category 4
Specific target organ toxicity - single exposure: Category 3 (Respiratory system)
Respiratory sensitization: Category 1
Specific target organ toxicity - repeated exposure: Category 1 (Respiratory Tract)
Skin irritation: Category 2 Skin sensitization: Category 1
Eye irritation: Category 2B

GHS label elements

Hazard Pictograms:



Signal word: Danger

Hazard statements: Harmful if inhaled.
May cause respiratory irritation.
May cause allergy or asthma symptoms or breathing difficulties if inhaled. Causes skin irritation.
May cause an allergic skin reaction. Causes eye irritation.
Causes damage to organs (Respiratory Tract) through prolonged or repeated exposure if inhaled.

Precautionary statements: Prevention: Avoid breathing dust, mist, gas, vapors or spray. Do not eat, drink or smoke when using this product.

Wash skin and face thoroughly after handling. Use only outdoors or in a well-ventilated area.

Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves. In case of inadequate ventilation wear respiratory protection. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards. For additional details, see section 8 of the SDS.

Section 3: Composition/information on ingredients

Hazardous Components

| Weight Percent | Components | Cas Number | Classification |
|-----------------------|---|-------------------|---|
| 50-60% | Polymeric Diphenylmethane Diisocyanate (pMDI) | 9016-87-9 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract |
| 35-45% | 4,4'-Diphenylmethane Diisocyanate (MDI) | 101-68-8 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Respiratory Tract. |
| 1-5% | 2,4'-Diphenylmethane Diisocyanate (MDI) | 5873-54-1 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |
| 0.1 - 1% | 2,2'-Diphenylmethane Diisocyanate | 2536-05-2 | Acute toxicity Category 4 Inhalation. Skin irritation Category 2. Eye irritation Category 2B. Respiratory sensitization Category 1. Skin sensitization Category 1. Specific target organ toxicity - single exposure Category 3 |

| | | | |
|--|--|--|---|
| | | | Respiratory system. Specific target organ toxicity - repeated exposure Category 1 Inhalation Respiratory Tract. |
|--|--|--|---|

Section 4: FIRST AID MEASURES

Description of necessary first aid measures

Skin: Clean exposed area with soap and lukewarm water. Remove contaminated clothing. Seek medical attention. Wash contaminated clothes before re-use.

Eyes: Immediately flush thoroughly with water for at least 15 minutes lifting eye lids occasionally. Get medical attention.

Inhalation: Remove victim to fresh air; extreme asthmatic reactions that may occur in sensitized persons can be life threatening. Get medical attention immediately. Administer oxygen or artificial respiration as needed. Asthmatic symptoms may develop and may be immediate or delayed up to several hours.

Ingestion: Do Not induce vomiting. Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Seek medical attention immediately.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Acute: Diisocyanate vapors or mist at concentrations above the TLV or PEL can irritate (burning sensation) the mucous membranes in the respiratory tract (nose, throat, lungs) causing runny nose, sore throat, coughing, chest discomfort, shortness of breath and reduced lung function (breathing obstruction). Persons with a preexisting, nonspecific bronchial hyperreactivity can respond to concentrations below the TLV or PEL with similar symptoms as well as asthma attack or asthma-like symptoms. Exposure well above the TLV or PEL may lead to bronchitis, bronchial spasm and pulmonary edema (fluid in lungs). Chemical or hypersensitivity pneumonitis, with flu-like symptoms (e.g., fever, chills), has also been reported. These symptoms can be delayed up to several hours after exposure. These effects are usually reversible. Causes skin irritation with symptoms of reddening, itching, and swelling. Persons previously sensitized can experience allergic skin reaction with symptoms of reddening, itching, swelling, and rash. Cured material is difficult to remove. Contact with MDI can cause discoloration.

Causes eye irritation with symptoms of reddening, tearing, stinging, and swelling. May cause temporary corneal injury. Vapor or aerosol may cause irritation with symptoms of burning and tearing. May cause irritation of the digestive tract. Symptoms may include abdominal pain, nausea, vomiting, and diarrhea.

Delayed: Symptoms affecting the respiratory tract can also occur several hours after overexposure.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician: Notes to Physician Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed. Workplace vapors could produce reversible corneal epithelial edema impairing vision. Skin: This compound is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn. Ingestion: Treat symptomatically. There is no specific antidote. Inducing vomiting is contraindicated because of the irritating nature of the compound. Inhalation: Treatment is essentially symptomatic. An individual having a dermal or pulmonary sensitization reaction to this material should be removed from further exposure to any diisocyanate. Specific Treatments: None
Protection of first aiders: Contact a doctor or poison control center.

Section 5: FIRE FIGHTING MEASURES

Means of Extinction: Suitable extinguishing media: Dry chemical, Carbon dioxide (CO₂), Foam, water spray for large fires.

Specific hazards arising from the chemical: During a fire, isocyanate vapors and other irritating, highly toxic gases may be generated by thermal decomposition or combustion. Exposure to heated diisocyanate can be extremely dangerous.

Special protective equipment and precautions for fire-fighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk without suitable training. Fire fighters should wear appropriate protective equipment and self contained breathing apparatus. Avoid contact with product. Decontaminate equipment and protective clothing prior to reuse. Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6: ACCIDENTAL RELEASE MEASURES**Spill Procedure:**

Clean up personnel must wear protective equipment to prevent contact with the product. Evacuate the area of all unnecessary personnel. Stop spill at source. Ventilate and remove ignition sources. Control the source of the leak. Contain the released material by damming, diking, retaining, or diverting into an appropriate containment area. Absorb or pump off as much of the spilled material as possible. When using absorbent, completely cover the spill area with suitable absorbent material (e.g., vermiculite, kitty litter, Oil-Dri®, etc..). Allow for the absorbent material to absorb the spilled liquid. Shovel the absorbent material into an approved metal container (i.e., 55-gallon salvage drum). Do not fill the container more than 2/3 full to allow for expansion, and do not tighten the lid on the container. Repeat

application of absorbent material until all liquid has been removed from the surface.

Decontaminate the spill surface area using a neutralization solution (see list of solutions on the SDS); scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application of the neutralization solution. Cover the area with absorbent material and shovel this into an approved metal container.

Apply lid loosely to metal waste container (do not tighten the lid because carbon dioxide gas and heat can be generated from the neutralization process). With the lid still loosely in place, move the container to an isolated, well-ventilated area to allow release of carbon dioxide. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, provincial and local regulations.

Neutralization solutions include:

- Easy Off Grill and Oven Cleaner or Easy Off Fume Free oven cleaner
- A mixture of 90% Fantastic Heavy Duty All Purpose Cleaner and 10% household ammonia.

It may take 2 or more applications of the neutralization solution to decontaminate the surface.

Personal Precautions, protective equipment and emergency procedures:

Wear suitable protection clothing, gloves and eye/face protection. Ventilate the area.

Environmental precautions: Should not be released into the environment. Do not flush into surface water or sanitary sewer system. Avoid subsoil penetration.

Methods and material for containment and cleaning up:

Suitable material for taking up: inert absorbing material, e.g., vermiculite, kitty litter, Oil-Dri®, etc. Pick up and transfer to properly labelled containers. Ventilate the area.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Protective Measures:

Put on appropriate personal protective equipment. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes, inhalation of vapours and mists. Use only with adequate ventilation to keep airborne isocyanate levels below the exposure limits. Wear appropriate respirator when ventilation is inadequate. Wear respiratory protection if material is heated, sprayed, used in a confined space, or if the exposure limit is exceeded. Warning properties (irritation of the eyes, nose and throat or odor) are not adequate to prevent overexposure from inhalation. This material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated

inhalation exposures to lower concentrations. Individuals with lung or breathing problems or prior allergic reactions to isocyanates must not be exposed to vapor or spray mist. Do not breathe smoke and gases created by overheating or burning this material. Decomposition products can be highly toxic and irritating. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected. Keep in the original container and keep tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands before, eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:

Store product in accordance with local regulation. Store product at room temperature away from heat and moisture. Store product in original container protected from direct sunlight in a dry, cool, and well ventilated area with local exhaust. Keep away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTIONS

Control Parameters

| Component | Cas Number | Exposure | Concentration |
|---|------------|----------|------------------|
| 4,4'-Diphenylmethane Diisocyanate (MDI) | 101-68-8 | ACGIH | TWA 0.005 ppm |

Appropriate Engineering Controls

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, etc) below recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice.

Individual Protection Measures

Eye Protection: When directly handling liquid product, eye protection is required, such as chemical safety goggles or chemical safety goggles in combination with a full face shield when there is a greater risk of splash.

Protection for skin: Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Animal tests and other research indicate that skin contact with MDI can play a role in causing isocyanate sensitization and respiratory reaction. This data reinforces the need to prevent direct skin contact with isocyanate.

Protection for hands: Gloves should be worn. Nitrile rubber showed excellent resistance, butyl rubber, neoprene and PVB are also effective.

Respiratory Protection

Airborne MDI concentrations greater than the ACGIH TLV-TWA (TLV) or OSHA PEL-C (PEL) can occur in inadequately ventilated environments when MDI is sprayed, aerosolized, or heated. In such cases, respiratory protection must be worn. The type of respiratory protection selected must comply with the requirements set forth in OSHA's Respiratory Protection Standard (29 CFR 1910.134).

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|--|
| Appearance & Colour: Brown Liquid | Vapour Pressure: < 0.0001 mmHg @ 25 °C (77 °F) |
| Physical State: Liquid | Vapour Density: Not available |
| Odour: Musty | Relative Density: 1.234 g/cm ³ @ 20°C (68°F) |
| Odour Threshold: Not available | Solubility in water: Insoluble - Reacts slowly with water to liberate CO ₂ gas |
| pH: Not applicable | Partition coefficient: Not available |
| Melting Point/Freezing Point: Not applicable | Auto Ignition Temp: Not available |
| Initial Boiling Point: 208°C (406.4°F) | Decomposition Temp: Not available |
| Flash Point: 198°C (388.4°F) | Dynamic Viscosity: 150 - 250 mPa.s @ 25°C (77°F) |
| Evaporation Rate: Not available | Specific Gravity: 1.24 @ 25°C (77°F) |
| Lower Flammable Limit: Not available | Explosive Properties: Not available |
| Upper Flammable Limit: Not available | |

Section 10: STABILITY AND REACTIVITY

Chemical Stability: This is a stable material at room temperature.

Possibility of Hazardous Reactions: Contact with moisture, other materials that react with isocyanates, or temperatures above 350°F(177°), may cause polymerization.

Conditions to avoid: Avoid high temperatures and heat.

Incompatibility (Materials to avoid): avoid water, amines, strong bases, alcohols, copper alloys.

Hazardous decomposition Products: By Fire and high heat: Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, isocyanate, isocyanic acid, other undetermined compounds.

Section 11: TOXICOLOGICAL INFORMATIONInformation on toxicological effects**Toxicological Information of the mixture:**

Acute Oral Toxicity: LD50: > 2000 mg/kg (rat, male/female)

Acute Inhalation Toxicity:

LC50: 0.49 mg/l, 490 mg/m³, 4 h, aerosol (rat)

The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:

LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)

Skin Irritation: rabbit, slightly irritating.

Repeated Dose Toxicity: 90 Days, inhalation: NOAEL: 1 mg/m³, (rat, Male/Female, 6 hrs/day 5 days/week). Irritation to lungs and nasal cavity.

2 years, inhalation: NOAEL: 0.2, (rat, Male/Female, 6 hrs/day 5 days/week). Irritation to lungs and nasal cavity.

Mutagenicity:

Genetic Toxicity in Vitro:

Bacterial - gene mutation assay: negative (Salmonella typhimurium, Metabolic Activation: with/without)

Carcinogenicity:

Rat, Male/Female, inhalation, 2 Years, 6 hrs/day 5 days/week
LOAEL: 6mg/l

Polymeric MDI has been classified as IARC Group 3 ("Not classifiable as to its carcinogenicity to humans") (1999) indicating there is inadequate evidence available to describe the carcinogenic potential. Epidemiological studies found no association between isocyanates and cancer. In chronic exposure studies in rodents, pMDI produced tumors only at the highest exposure level of 6 mg/m³. This exposure level is significantly above the TLV for MDI (0.051 mg/m³). Based on the weight of the evidence, a determination of not classified for carcinogenicity is justified.

Developmental Toxicity/Teratogenicity:

Rat, female, inhalation, gestation days 6-15, 6 hrs/day, NOAEL

(teratogenicity): 12 mg/m³, NOAEL (maternal): 4 mg/m³
No Teratogenic effects observed at doses tested., Fetotoxicity seen only with maternal toxicity.

Toxicological Information of 4,4'-Diphenylmethane Diisocyanate (MDI):

Acute Oral Toxicity: LD50:>7616 mg/kg(rat) (OECD Test Guideline 401)

LC50: 0.368 mg/l, 4 h, dust/mist(rat, male) (OECD Test Guideline 403)
The test atmosphere generated in the animal study is not representative of workplace environments, how the substance is placed on the market, and how it can reasonably be expected to be used. Therefore the test result cannot be directly applied for the purpose of assessing hazard. Based on expert judgment and the weight of the evidence, a modified classification for acute inhalation toxicity is justified.

Acute Dermal Toxicity:

LD50: > 9400 mg/kg (rabbit, male/female) (OECD Test Guideline 402)
Studies of a comparable product.

Skin Irritation:

rabbit, Draize Test, Slightly irritating
human, irritating

Eye Irritation:

rabbit, Draize, Moderately irritating
human, irritating

Sensitization:

Skin sensitization (local lymph node assay (LLNA)):: positive (Mouse, OECD Test Guideline 429)

Respiratory sensitization: positive (Guinea pig)

Repeated Dose Toxicity:

90 Days, inhalation: NOAEL: 0.3 mg/m³, (rat, Male/Female, 18 hrs/day, 5 days/week)

Irritation to lungs and nasal cavity.
(Human)

Irritation to lungs and nasal cavity.

Mutagenicity:

Genetic Toxicity in Vitro:

Ames: (Salmonella typhimurium, Metabolic Activation: with/without)
Positive and negative results were reported. The use of certain solvents which rapidly hydrolyze diisocyanates is suspected of producing the positive mutagenicity results.

Genetic Toxicity in Vivo:

Micronucleus Assay: (Mouse)negative

Micronucleus test: negative (rat, male, Inhalative
(exposure period: 3x1h/day over 3 weeks))

negative

Carcinogenicity:

rat, Female, inhalation, 2 Years, 17 hrs/day, 5 days/week negative

Other Relevant Toxicity Information:

May cause irritation of respiratory tract.

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity effects:

Acute and prolonged Toxicity to Fish: LC0: > 1,000 mg/l (Danio rerio (zebra fish), 96 h)

LC0: > 3,000 mg/l (Oryzias latipes (Orange-red killifish), 96 h)

Acute toxicity to aquatic invertebrates:

EC50: > 1,000 mg/l (Water flea (Daphnia magna), 24 h)

Toxicity to Aquatic Plants:

NOEC: 1,640 mg/l, End Point: growth (Green algae (Scenedesmus subspicatus), 72 h)

Toxicity to microorganisms:

EC50: > 100 mg/l, (activated sludge, 3 h)

Biodegradation: 0%, Exposure time: 28 days, ie. Not degradable

Bioaccumulative Potential: Oncorhynchus mykiss (rainbow trout), exposure time: 112 days, <1, BCF does not bioaccumulate.

Mobility in Soil: Not available

Other adverse effects: Not available

Section 13: DISPOSAL CONSIDERATIONS

Disposal Procedure:

Comply with Federal, provincial, and local regulations on reporting releases.

Consult your local or regional authorities.

Section 14: TRANSPORT INFORMATION

TDG (TRANSPORATION OF DANGEROUS GOODS) CLASSIFICATION: Not regulated

Class: Not regulated

Environmental Hazards: Not available

Special Precautions: Not available

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16: OTHER INFORMATION

References: Canadian Guide of the Law and Regulations of the Transportation of Dangerous Goods. Controlled products regulations. Manufacturer's Safety Data Sheet.

Regulatory Affairs Department: 519-754-1678

DATE: November 24, 2022

REVISION 1

PREPARED BY: Regulatory Affairs group,
Elastochem Specialty Chemicals Inc.

Section 1: IDENTIFICATION

GSH Product Identifier: Hybrid Pro Part B
Other means of Identification: None

Relevant Identified uses of the substance or mixture and uses advised against

Product Use: Component of a Foam Insulation System
Area of Application: Industrial applications
Supplier/Manufacturer: Elastochem Specialty Chemicals Inc.
37 Easton Road
Brantford, Ontario N3P 1J4
Phone (519) 754-1678 Fax (519) 754-4487
Emergency Telephone #: Chemtrec Emergency Number: 800-424-9300

Section 2: Hazard Identification**Classification of the substance or mixture:**

Skin Irritation - Category 2
Eye Irritation - Category 2A
Acute Toxicity (Inhalation) - Category 4
Acute Toxicity (Oral) - Category 4
Specific target organ toxicity - repeated exposure - Oral Category 2
(kidney)

GHS label elements

Signal word: Warning
Pictogram:



Hazard Statements: Causes skin irritation.
Causes serious eye irritation.
Harmful if swallowed.
Harmful in contact with skin.
Harmful if inhaled.

Precautionary statements:

Prevention: Avoid breathing vapours/spray
Use in a well ventilated area
Wash thoroughly after handling
Wear protective gloves

Section 3: Composition/information on ingredients

Substance/mixture: Mixture

Other means of identification: Not available

| Ingredient | % (w/W) | CAS # | Exposure Limit | LD50/LC50 |
|---|---------|-----------|----------------|--|
| Dimethylamino ethoxyethanol | 1-5% | 1704-62-7 | Not available | 2337mg/kg (rat-oral)/ 1000mg/l 4hr (rat-inhalation) |
| 1,3-Propane diamine N'-(3-(dimethylamino)propyl)-N,N-dimethyl | 1-5% | 6711-48-4 | Not available | >1.25g/kg (rat-oral) / Not determined |
| Polyoxypropylen ediamine | 1-5% | 9046-10-0 | Not available | 2885.3mg/kg (rat-oral) / >0.74mg/l |

Section 4: FIRST AID MEASURESDescription of necessary first aid measures

Skin: Clean exposed area with soap and warm water. Continue to rinse for at least 10 minutes. Remove contaminated clothing. Wash clothes before reuse. Seek medical attention if irritation persists.

Eyes: Immediately flush thoroughly with water for at least 15 minutes lifting eye lids occasionally. Seek medical attention.

Inhalation: Remove victim to fresh air; give artificial respiration if not breathing. Seek medical attention.

Ingestion: Wash mouth out with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Do not induce vomiting. Seek medical attention immediately.

Most important symptoms/effects, acute and delayedPotential acute health effects

Causes skin irritation.

Causes serious eye irritation.

Over exposure signs/symptoms

Skin Contact: Not available

Eye Contact: Not available

Inhalation: Not available

Ingestion: Not available

Delayed and Immediate effects and also chronic effects from short and long term exposure

Short Term Exposure: Not available

Long Term Exposure: Not available

Indication of immediate medical attention and special treatment needed, if necessary

Notes to Physician: Treat symptomatically.

Specific Treatments: None

Protection of first aiders: No action shall be taken involving any personal risk or without suitable training. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

Section 5: FIRE FIGHTING MEASURES

Means of Extinction: Use extinguishing agent suitable for the surrounding fire. Suitable extinguishing media: Use dry chemical, Carbon Dioxide, water spray or alcohol resistant foam.

Specific hazards arising from the chemical: Carbon oxides, nitrogen oxides, dense black smoke. Burning produces irritant fumes.

Hazardous combustion products: May produce carbon dioxide, carbon monoxide, oxides of nitrogen, Dense black smoke. Other potentially toxic fumes.

Special protective equipment and precautions for fire-fighters:

Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk without suitable training. Fire fighters should wear appropriate protective equipment and self contained breathing apparatus with a full face piece operated in positive pressure mode. Move undamaged containers from immediate hazard area if it can be done safely.

Section 6: ACCIDENTAL RELEASE MEASURES

Spill Procedure:

Clean up personnel must wear protective equipment to prevent contact with the product. Evacuate the area of all unnecessary personnel. Stop spill at source. Use inert absorbent material such as sand, clay, earth or floor absorbent to clean up spill. Shovel into drums.

Personal Precautions, protective equipment and emergency procedures:

Ensure adequate ventilation. Wear personal protection equipment.

Remove persons to safety. Do not breathe vapours or spray mist.

Methods and material for containment and cleaning up:

Suitable material for taking up: Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container.

Wash with plenty of water.

Section 7: HANDLING AND STORAGE

Precautions for safe handling:

Protective Measures:

Put on appropriate personal protective equipment. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Use only with adequate ventilation. Wear appropriate respirator. Avoid contact with eyes and skin. Keep in the original container and keep tightly closed when not in use.

Advice on general occupational hygiene:

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored, and processed. Workers should wash hands before, eating, drinking or smoking. Remove contaminated clothing and protective equipment before entering eating areas.

Conditions for safe storage, including any incompatibilities:

Store product in accordance with local regulation. Store product at room temperature away from heat and moisture. Store product in original container in a dry, cool, and well ventilated area with local exhaust. Keep away from incompatible materials and food and drink. Keep container tightly closed and sealed until ready for use.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTIONS**Appropriate Engineering Controls**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapour, etc) below recommended exposure limits. Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes, and clothing. Do not breathe dust/fume/gas/mist/vapours.

Individual Protection Measures

Eye Protection: When directly handling liquid product, eye protection is required, such as chemical safety goggles or chemical safety goggles in combination with a full face shield when there is a greater risk of splash.

Protection for skin: Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact.

Protection for hands: Chemical resistant, impervious gloves complying with an approved standard should be worn at all times when handling this product. For example, nitrile rubber, butyl rubber, neoprene and PVB

Respiratory Protection: Spraying increases the risk of hazardous exposure. In atmospheres where the material is sprayed or heated, workers should avoid contact with aerosols through proper engineering controls such as exhaust ventilation and proper protective equipment such as a full face air supplied respirators.

Hygiene Measures: Wash hands, forearms and face thoroughly after handling chemical products.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|---|--------------------------------------|
| Appearance & Colour: Yellow | Vapour Pressure: Not available |
| Physical State: Liquid | Vapour Density: Not available |
| Odour: Amine Odour | Relative Density: Not available |
| Odour Threshold: Not available | Solubility in water: Miscible |
| pH:8-10 | Partition coefficient: Not available |
| Melting Point/Freezing Point: Not available | Auto Ignition Temp: Not applicable |
| Initial Boiling Point: 212°C | Decomposition Temp: Not available |
| Flash Point: >141°C | Viscosity: 500cps at 20°C |
| Evaporation Rate: Not available | Specific Gravity: ~1.1g/ml |
| Lower Flammable Limit: Not available | |
| Upper Flammable Limit: Not available | |

Section 10: STABILITY AND REACTIVITY

Chemical Stability: This is a stable material at room temperature.

Possibility of Hazardous Reactions: Not available.

Conditions to avoid: High temperatures, open flames and sparks.

Incompatibility (Materials to avoid): Reacts with strong acids.

Hazardous decomposition Products: Carbon Monoxide, carbon dioxide, oxides of nitrogen. Dense black smoke. Other potentially toxic fumes.

Hazardous Polymerization: Polymerization may occur with contact with isocyanates.

Section 11: TOXICOLOGICAL INFORMATION

Toxicological effects: No information available

Skin Irritation: Causes skin irritation

Eye Irritation: Causes serious eye irritation

Sensitization: No information available

Mutagenicity: No information available

Developmental Toxicity/Teratogenicity: No information available

Section 12: ECOLOGICAL INFORMATION

Ecotoxicity: Not available

Persistence and Degradability: Not available

Bioaccumulative Potential: Not available

Mobility in Soil: Not available

Other adverse effects: Not available

Section 13: DISPOSAL CONSIDERATIONS**Disposal Procedure:**

Comply with Federal, provincial, and local regulations on reporting releases.

Consult your local or regional authorities.

Section 14: TRANSPORT INFORMATION

TDG (TRANSPORATION OF DANGEROUS GOODS) CLASSIFICATION: Not regulated

Class: Not regulated

Packing Group: Not regulated

Special Precautions: Not available

Section 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

Section 16: OTHER INFORMATION

References: Canadian Guide of the Law and Regulations of the Transportation of Dangerous Goods. Controlled products regulations. Manufacturer's Safety Data Sheet.

Regulatory Affairs Department: 519-754-1678

DATE: November 24, 2022

REVISION 1

PREPARED BY: Regulatory Affairs group,
Elastochem Specialty Chemicals Inc.



Technical Data Sheet

NCFI 11-033 InsulStar[®] 1.7SmartSPF Spray Foam System

DESCRIPTION:

11-033 InsulStar[®] 1.7SmartSPF is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam system. This system has been formulated with highly insulating HFO as the blowing agent. The InsulStar[®] 1.7SmartSPF insulation system is suitable for application on the interior building envelope of Type I, II, III, IV, & V buildings as well as other insulation applications.

DISTINGUISHING CHARACTERISTICS:

- Low GWP
- High Yields
- High R-Value
- Meets ASTM E-84, FS ≤ 25 , SD ≤ 450 @ 4"
- Air Impermeable Insulation at 1/2"
- Class II Moisture Vapor Retarder @1.7"
- FEMA Flood Resistance - Class 5
- Low VOC per CDPH Standard V 1.2, 2017
- No Bacterial & Fungal Growth ASTM C1338

| R-Values* | |
|--------------------|---------------------------------------|
| Thickness (inches) | R-Value (°F-hr-ft ² / Btu) |
| 1 | 7.1 |
| 2 | 14 |
| 3 | 20 |
| 3.5 | 23 |
| 5.5 | 37 |
| 6 | 40 |
| 7 | 47 |
| 8 | 53 |
| 9 | 60 |

*Note: As with all insulating materials, the R-value will vary with age and use conditions.

For proper use of this NCFI insulating material refer to the NCFI Application Information and the following codes or guidelines:

- 2021 International Building Code Chapter 26 or Residential Code Section R316 & R806
- NCFI Product Stewardship Manual

TYPICAL PHYSICAL PROPERTIES¹:

| | |
|--|--|
| Free Rise Core Density ² ASTM D 1622 | 1.7 pcf |
| Closed Cell Content ASTM D 6226 | >90% |
| R-value @ 1" - ASTM C 518 | 7.1 |
| Air Perm @1/2" ASTM E2178 | ≤ 0.02 |
| Moisture Vapor Perm ASTM E96 | 1.7 perms |
| Compressive Strength ASTM D1621 | 27 psi |
| Tensile Strength ASTM D1621 | 45 psi |
| Flammability ASTM E-84 @ 4 inches | Flame Spread ≤ 25 Smoke Dev ≤ 450 |
| Max Service Temperature | 180°F |

¹The above values are average values obtained from laboratory experiments and should serve only as guide lines.

²Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

- UES ER 667 Code Compliance Report
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)
- Go to: polyurethane.americanchemistry.com and find the "Products, Resources, and Documents Library" tab

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.



11-033 Application Information

STORAGE OF 11-033 CHEMICALS:

Avoid storage in freezing temperatures. Storing chemicals above 90°F should be avoided as much as possible. Do not store in direct sunlight. The shelf life of unopened A2-000 is 24 months and the B11-033 is 6 months.

SPRAYING 11-033 CHEMICALS: Chemicals should be between 65°F and 85°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time to stabilize back into the 65°F to 85°F range. Excessively warm chemicals should be cooled prior to opening the drums for safety and processing reasons. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The 11-033 system, consisting of the A2-000 and B11-033 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B drum is connected to the resin pumps, and the A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1. Dispensing temperature should be set at approximately 130°F to give a good pattern. Due to equipment variations, the application temperature settings may need to be adjusted to achieve a good spray pattern. For pressure settings above 1,000 psi, the temperature settings can be slightly lower.

APPLICATION GUIDELINES:

11-033 is suitable for application to most construction materials including wood, masonry, concrete, and metal. 11-033 should not be applied to surfaces that will be in contact with soil and intermittent contact with water. To ensure proper adhesion, all substrate surfaces should be

dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will not produce foam with optimum properties. In the most extreme case, 11-033 could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum recommended pass thickness for 11-033 is 4 inches, which should be limited to warmer substrates. When applying pass thicknesses greater than 2 inches, wait 10 minutes or until the foam surface has cooled to ambient temperature before adding additional foam passes. Multiple layers can be applied to achieve the desired R-value.

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 30°F and 120°F when applying 11-033. Adhesion will typically be better on warmer substrates. When surface temperatures fall below 60°F, adhesion may be aided by applying a thinner flash coat followed by a full thickness pass while the flash coat is still warm but no longer tacky to the touch. Another technique to improve adhesion in studwall assemblies is to apply a cant along the side of the studs before filling in the center of the stud bay.

| 11-033 System Speeds | Ambient Temperature Guidelines |
|----------------------|--------------------------------|
| SLOW | 70°F and up |
| REG | 40°-80°F |
| FAST | 30°-50°F |

ATTICS and CRAWL SPACES

11-033 has passed testing for application in limited access attics and crawl spaces without the code prescribed ignition barrier covering. The foam thickness can be up to 8" on wall cavities and 10" in ceiling cavities.





11-033 Application Information

APPLICATION AROUND PLASTIC PIPES:

Based on a series of extensive studies, the 11-033 system can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. The pipes must not be pressurized during the foam application. The foam pass applied in contact with the pipe should not exceed 2" thickness in order to prevent excessive exothermic heat at the pipe to foam interface. Wait the required 2 minutes between each additional foam pass to allow the foam to cool. The total foam thickness is limited to the thickness permitted in that area of the building assembly.

APPLICATION AROUND ELECTRICAL WIRES:

Based on NCFI testing, the 11-033 system can be applied in contact with electrical wires. Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. To encapsulate light gauge wires in the foam, spray foam behind the wires and allow it to cool for 2 minutes before applying a lift of approximately 3/4 inch to cover the wire. Allow this pass to cool to near ambient temperature to avoid excessive heat build up before applying additional passes to achieve the desired R-value thickness.

BACTERIA AND FUNGUS RESISTANCE:

InsulStar®1.7 is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM C1338 test. The anti-microbial properties do not protect occupants of spaces insulated with InsulStar®1.7 from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

VAPOR BARRIER PROTECTION ON COLD STORAGE APPLICATIONS:

When InsulStar®SmartSPF is used in structures subject to continuous cold or hot temperatures, such as coolers/freezers or indoor swimming pools, a Class I moisture vapor barrier (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact NCFI for specific recommendations.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-033, be separated from the interior of the building by a 15 minute thermal barrier of 1/2" gypsum wallboard or other approved material. Refer to UES ER 677 for details. When Fire Resistive Wall Assemblies are required, contact NCFI Polyurethanes for specific alternate approvals for InsulStar®1.7SmartSPF.

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before 11-033 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the 11-033 system, contact an NCFI representative.

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and airborne particulates. For interior applications, the building area must be vented with fresh air to dissipate the particulates. The amount of air flow and time for venting will vary based on each situation. Refer to the NCFI Technical Bulletin "Ventilation Requirements for Reentry of Spaces After Spraying Closed Cell Spray Foams". SPF contractors should refer to this guidance prior to beginning any spray foam application project. Other workers and occupants should remain out of the immediate area during this venting time period.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.





SAFETY DATA SHEET According to GHS

PO Box 1528 • Mount Airy, NC 27030-1528
800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-11-033
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|---|
| 102687-65-0 | 12-15% | Trans-1-Chloro-3,3,3-trifluoropropene ($\text{CF}_3\text{HC}=\text{CHCl}$ or HFO-1233zd) |
| Proprietary | 2 – 5% | Tertiary amine catalysts |
| Proprietary | < 0.5% | Organometallic catalyst |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO_2 |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by $\text{CF}_3\text{HC}=\text{CHCl}$. $\text{CF}_3\text{HC}=\text{CHCl}$ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| Trans-1-Chloro-3,3,3-trifluoropropene ¹ (CF ₃ HC=CHCl or HFO-1233zd) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | | None established |
| Organometallic catalysts ¹ | | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Light Brown | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.20g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 66°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 04/04/2017 |
| Revision Date: | 10/27/2017 |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.

InsulStar® SPRAY FOAM SYSTEM (11-016)

DESCRIPTION:

InsulStar® is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam system. This NCFI system has been formulated with highly insulating HFC-245fa as the blowing agent. The InsulStar® insulation system is suitable for application on the exterior or interior side of Type I, II, III, IV, & V buildings as well as other insulation applications. It complies with AC 377 and ASTM C1029. InsulStar® is certified for application in ABAA projects.

DISTINGUISHING CHARACTERISTICS:

- High R-Value
- Zero ODP
- Moisture Vapor Retarder - Class II @ 1.3"
- High Yields
- Approved with DC315 coating in lieu of code prescribed Thermal Barrier
- Air Barrier, ABAA Certified @1"
- Good Dimensional Stability
- Meets ASTM E-84, FS ≤25, SD ≤450 @ 4"
- FEMA Flood Resistance - Class 5
- Water Resistive Barrier (AC71) @1"
- Passed NFPA 285
- Approved in multiple UL Fire Resistive Assemblies
- Low VOC per CDPH Standard V 1.2, 2017

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- 2018 International Building Code Chapter 26
- 2018 International Residential Code Section R316 and R806
- ICC-ES Evaluation Report 1615
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)

TYPICAL PHYSICAL PROPERTIES*1:

| | |
|--|--|
| Free Rise Core Density*2 ASTM D 1622 | 2.0 pcf |
| Compressive Strength ASTM D 1621 | 27 psi |
| Moisture Vapor Transmission - ASTM E 96 | 1.3 perm-in |
| Closed Cell Content ASTM D 6226 | >90% |
| R-value @ 1" - ASTM C 518 | 6.8 |
| Air Permeance @1" Infiltration ASTM E 283 & 2178 Exfiltration | 0.000 cfm/ft ² @ 1.57 psf 0.000 cfm/ft ² @ 1.57 psf |
| Bacterial & Fungal Growth ASTM G 21 & E 1428 | Negligible*3 |
| STC - ASTM E 90 OITC - ASTM E 90 | 31*4 24*4 |
| Flammability ASTM E-84 @ 4 inches | Flame Spread ≤25 Smoke Dev ≤450 |
| Potential Heat—NFPA 259 | 1989 Btu/ft ² /inch |
| Max Service Temperature | 180°F |

*1The above values are average values obtained from laboratory experiments and should serve only as guide lines.

*2Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

*3See page 4 for details.

*4As measured in a 2" x 4" studwall assembly.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

InsulStar® (11-016) Insulation

| R-Values* | | | | |
|-----------------------|---|------------------------|--|---|
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm | Installation Limitations with a prescriptive Thermal Barrier | Limitations with DC 315 Coating on the foam in lieu of a Thermal Barrier |
| 1 | 6.8 | 1.3 | No limit for Thickness in walls | In vertical wall max thickness 5.5" with DC 315 applied at 14 wet mils (9 dry mils) |
| 2 | 13 | 0.65 | | |
| 3 | 20 | 0.43 | | |
| 3.5 | 23 | 0.37 | | |
| 4.75 | 30 | 0.27 | No limit for Thickness in ceilings/roof decks | Underside of roof decks max thickness 9.5" with DC 315 applied at 14 wet mils (9 dry mils) |
| 5.5 | 35 | 0.24 | | |
| 6 | 38 | 0.22 | | |
| 9.5 | 61 | 0.14 | | |
| 10 | 64 | 0.13 | | |

*Note: As with all insulating materials, the R-value will vary with age and use conditions.

| Property | Test Method | Test Condition | Result | Approved for Wind-Uplift resistance when installed under the roof deck at rafter/truss connection. Florida Product Approval #9975 with plywood decks are rated to 190 psf and OSB decks are rated to 200 psf. Miami-Dade NOA with plywood decks rated to 142.5 psf. InsulStar® provides the Secondary Water Resistive Barrier |
|---------------------------------|-------------------|----------------------------|--|--|
| Air Barrier Certification | ASTM E 283 | Infiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² | |
| | ASTM E 2178 | Exfiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² | |
| Water Resistance | AATCC 127-1998 | @ 56.5 ft | 1 inch thickness No failure | |
| | ASTM E 331 | 6.24 psf | 1 inch thickness No Penetration | |

InsulStar® closed cell spray foam system is an approved Air Barrier material per the Air Barrier Association of America (ABAA) and is certified per AC 71 as a Water Resistive Material when installed on the exterior side of walls. Exterior wall coverings of this spray foam system may be restricted. Contact NCFI for the current approvals.



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INSULSTAR™ 11-016 Application Information

STORAGE AND USE OF CHEMICALS:

The InsulStar® chemicals consisting of the A2-000 and B11-016 drums should be between 65°F and 80°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time in moderate temperature storage to stabilize back in the proper application range. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. Storing chemicals above 90°F should be avoided as much as possible. Excessively warm chemicals should be cooled prior to opening the drums. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. When properly stored, unopened drums of A2-000 have a shelf life of 24 months and B11-016 drums have a shelf life of 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to www.spraypolyurethane.org, Resources box, "Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF".

APPLICATION GUIDELINES:

InsulStar® is suitable for application to most construction materials including wood, masonry, concrete, and metal. Application can be to the exterior or interior side of wall surfaces. InsulStar® can be applied to surfaces that will be in contact with soil and intermittent contact with water, such as below grade exterior foundation and basement walls or under concrete slab floors. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface rust, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.

APPLICATION AROUND PLASTIC PIPES:

Based on a series of extensive studies, the InsulStar® system can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. The pipes must not be pressurized during the foam application. The foam pass applied in contact with the pipe should not exceed 2" thick in order to prevent excessive exothermic heat at the pipe to foam interface. Allow a 2 minute cooling between each additional foam pass. The total foam thickness is limited to that thickness permitted in that area of the building assembly.

APPLICATION AROUND ELECTRICAL WIRES:

Based on NCFI testing, the InsulStar® system can be applied in contact with electrical wires. Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. Light gauge wires which will be encapsulated in the foam layer should have the foam installed behind the wires and allowed to cool prior to applying a top layer to cover the wire. Use a shallow lift of 3/4" of foam to cover the wire. Wait the required 2 minutes between passes when adding more foam thickness to achieve the desired R-value.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will degrade cell structure and not produce foam with optimum properties. In the most extreme case, InsulStar® could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum pass thickness for InsulStar® is 4 inches. When applying pass thicknesses greater than 2 inches, wait 10 minutes or until the foam surface has cooled to ambient temperature before adding additional foam passes. Multiple layers can be applied to achieve the desired R-value..

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and airborne particulates. For interior applications the building area must be vented with fresh air to dissipate the particulates. The amount of air flow and time for venting will vary based on each situation. Details regarding ventilation is provided in the Spray Foam Coalition document "Ventilation Considerations for Spray Polyurethane Foam" found in the NCFI Product Stewardship Manual (PSM). SPF Contractors should refer to this guidance prior to beginning any spray foam application project. Reentry time and reoccupancy time is provided in the NCFI Technical Bulletin - Ventilation Requirements for Reentry of Spaces After Spraying Closed Cell Spray Foams.

InsulStar® (11-016) Application Information

EQUIPMENT AND COMPONENT RATIOS:

InsulStar® should be sprayed with plural component proportioning pump designed for polyurethane spray foam. The B-11-016 drum is connected to the resin pumps with the A2-000 drum connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1 by volume. The preheater and hose temperature should be set at 130°F to give a good pattern. Due to equipment variations, the application temperature settings may be adjusted to achieve a good spray pattern. For higher-pressure settings above 1,000 psi, temperature settings can be slightly lower.

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 10°F and 120°F. In this range the warmer the surface, the better the adhesion. NCFI has three grades of InsulStar® foam for this application range: G-series designed for temperatures no lower than 50°F, M-series designed for temperatures as low as 20°F and the X-series, when processing must be conducted down to temperatures as low as 10°F. For best results, when surfaces to be sprayed are cooler than 60°F, a flash coat should be applied with the second coat following as soon as the original coat is no longer tacky to the touch.

BACTERIA AND FUNGUS RESISTANCE:

InsulStar® is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM G-21 and E-1428 tests. The anti-microbial properties do not protect occupants of spaces insulated with InsulStar® from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

VAPOR BARRIER PROTECTION ON COLD STORAGE APPLICATIONS:

When InsulStar® is used in structures subject to continuous cold temperatures, such as coolers and freezers, a Class I moisture vapor barrier (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact NCFI for specific recommendations.

WEATHER PROTECTION OF FINISHED FOAM ON EXTERIOR APPLICATIONS:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available. On exterior applications where a masonry veneer or mechanically attached covering is to be installed, the InsulStar® foam surface may be exposed to UV light up to 6 months.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-016, be separated from the interior of the building by a 15 minute thermal barrier of ½" gypsum board or other approved material. Refer to specific building codes for details. 11-016 has passed testing with the DC315 intumescent coating in lieu of the thermal barrier. When covering the foam with DC315, the foam thickness on walls is limited to a maximum of 5.5" and on roof/ceiling assemblies the maximum thickness is 9.5". The DC315 is applied at 14 mils wet film thickness, or 1 gallon per 115 square feet.

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before InsulStar® is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the InsulStar® system, contact an NCFI representative.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.





SAFETY DATA SHEET According to GHS

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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-11-016 G&M series
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--|
| 460-73-1 | 12% | 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) |
| Proprietary | <4 | Tertiary amine catalysts |
| 156-60-5 | <4 | Trans-1,2-Dichloroethylene |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by CF ₃ CH ₂ CHF ₂ . CF ₃ CH ₂ CHF ₂ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | TWA | None established |
| Trans-1,2-Dichloroethylene | TWA | 200ppm |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Green | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.23g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 60°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 06/26/2014 |
| Revision Date: | 10/27/2017 |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.

TECHNICAL DATA SHEET

InsulBloc® SPRAY FOAM SYSTEM (11-017)

DESCRIPTION:

InsulBloc is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam system. This NCFI system has been formulated with highly insulating HFC-245fa as the blowing agent. The InsulBloc® insulation system is suitable for application on the exterior or interior side of Type I, II, III, IV, & V buildings as well as other insulation applications. It complies with AC 377 and ASTM C1029. InsulBloc is certified for application in ABAA projects.

DISTINGUISHING CHARACTERISTICS:

- High R-Value
- Zero ODP
- Moisture Vapor Retarder - Class II @ 1.3"
- High Yields
- Approved with DC315 coating in lieu of code prescribed Thermal Barrier
- Air Barrier, ABAA Certified @1"
- Good Dimensional Stability
- Meets ASTM E-84, FS ≤ 25 , SD ≤ 450 @ 4"
- FEMA Flood Resistance - Class 5
- Water Resistive Barrier (AC71) @1"
- Passed NFPA 285
- Approved in multiple UL Fire Resistive Assemblies
- Low VOC per CDPH Standard V 1.2, 2017

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- 2018 International Building Code Chapter 26
- 2018 International Residential Code Section R316 and R806
- ICC-ES Evaluation Report 1615
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)

TYPICAL PHYSICAL PROPERTIES*1:

| | |
|--|--|
| Free Rise Core Density*2 ASTM D 1622 | 2.0 pcf |
| Compressive Strength ASTM D 1621 | 27 psi |
| Moisture Vapor Transmission - ASTM E 96 | 1.3 perm-in |
| Closed Cell Content ASTM D 6226 | >90% |
| R-value @ 1" - ASTM C 518 | 6.8 |
| Air Permeance @1" Infiltration ASTM E 283 & 2178 Exfiltration | 0.000 cfm/ft ² @ 1.57 psf 0.000 cfm/ft ² @ 1.57 psf |
| Bacterial & Fungal Growth ASTM G 21 & E 1428 | Negligible*3 |
| STC - ASTM E 90 OITC - ASTM E 90 | 31*4 24*4 |
| Flammability ASTM E-84 @ 4 inches | Flame Spread ≤ 25 Smoke Dev ≤ 450 |
| Potential Heat—NFPA 259 | 1989 Btu/ft ² /inch |
| Max Service Temperature | 180°F |

*1The above values are average values obtained from laboratory experiments and should serve only as guide lines.

*2Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

*3See page 4 for details.

*4As measured in a 2" x 4" studwall assembly.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

InsulBloc® (11-017) Insulation

| R-Values* | | | | |
|-----------------------|---|------------------------|--|---|
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm | Installation Limitations with a prescriptive Thermal Barrier | Limitations with DC 315 Coating on the foam in lieu of a Thermal Barrier |
| 1 | 6.8 | 1.3 | No limit for Thickness in walls | In vertical wall max thickness 5.5" with DC 315 applied at 14 wet mils (9 dry mils) |
| 2 | 13 | 0.65 | | |
| 3 | 20 | 0.43 | | |
| 3.5 | 23 | 0.37 | | |
| 4.75 | 30 | 0.27 | No limit for Thickness in ceilings/roof decks | Underside of roof decks max thickness 9.5" with DC 315 applied at 14 wet mils (9 dry mils) |
| 5.5 | 35 | 0.24 | | |
| 6 | 38 | 0.22 | | |
| 9.5 | 61 | 0.14 | | |
| 10 | 64 | 0.13 | | |

*Note: As with all insulating materials, the R-value will vary with age and use conditions.

| Property | Test Method | Test Condition | Result | Approved for Wind-Uplift resistance when installed under the roof deck at rafter/truss connection. Florida Product Approval #9975 with plywood decks are rated to 190 psf and OSB decks are rated to 200 psf. Miami-Dade NOA with plywood decks rated to 142.5 psf. InsulBloc® provides the Secondary Water Resistive Barrier |
|---------------------------------|-------------------|----------------------------|--|--|
| Air Barrier Certification | ASTM E 283 | Infiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² | |
| | ASTM E 2178 | Exfiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² | |
| Water Resistance | AATCC 127-1998 | @ 56.5 ft | 1 inch thickness No failure | |
| | ASTM E 331 | 6.24 psf | 1 inch thickness No Penetration | |

InsulBloc® closed cell spray foam system is an approved Air Barrier material per the Air Barrier Association of America (ABAA) and is certified per AC 71 as a Water Resistive Material when installed on the exterior side of walls. Exterior wall coverings of this spray foam system may be restricted. Contact NCFI for the current approvals.



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STORAGE AND USE OF CHEMICALS:

The InsulBloc chemicals consisting of the A2-000 and B11-017 drums should be between 65°F and 80°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time in moderate temperature storage to stabilize back in the proper application range. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. Storing chemicals above 90°F should be avoided as much as possible.

Excessively warm chemicals should be cooled prior to opening the drums. Do not store in direct sunlight. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. When properly stored, unopened drums of A2-000 have a shelf life of 24 months and B11-017 drums have a shelf life of 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to www.spraypolyurethane.org, Resources box, "Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF".

APPLICATION GUIDELINES:

InsulBloc® is suitable for application to most construction materials including wood, masonry, concrete, and metal. Application can be to the exterior or interior side of wall surfaces. InsulBloc can be applied to surfaces that will be in contact with soil and intermittent contact with water, such as below grade exterior foundation and basement walls or under concrete slab floors. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface rust, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.

APPLICATION AROUND PLASTIC PIPES:

Based on a series of extensive studies, the InsulBloc® system can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. The pipes must not be pressurized during the foam application. The foam pass applied in contact with the pipe should not exceed 2" thick in order to prevent excessive exothermic heat at the pipe to foam interface. Allow a 2 minute cooling between each additional foam pass. The total foam thickness is limited to that thickness permitted in that area of the building assembly.

APPLICATION AROUND ELECTRICAL WIRES:

Based on NCFI testing, the InsulBloc system can be applied in contact with electrical wires. Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. Light gauge wires which will be encapsulated in the foam layer should have the foam installed behind the wires and allowed to cool prior to applying a top layer to cover the wire. Use a shallow lift of 3/4" of foam to cover the wire. Wait the required 2 minutes between passes when adding more foam thickness to achieve the desired R-value.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will degrade cell structure and not produce foam with optimum properties. In the most extreme case, InsulBloc could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum pass thickness for InsulBloc is 4 inches, and a 2 minute cooling time is required before adding additional foam passes. Multiple layers can be applied to reach the desired R-value.

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and fumes with a distinct odor. For interior applications the building area must be vented with fresh air to dissipate the odor. The amount of air flow and time for venting will vary based on each situation. A closed attic area may require fans to force air into and out of the space. An open building that does not have the doors and windows installed may have sufficient air flow to vent the odor fairly quickly. Reentry time for closed-in areas being vented with fans is typically about 24 hours. Other workers should remain out of the immediate area during this venting time period.

InsulBloc® (11-017) Application Information

EQUIPMENT AND COMPONENT RATIOS:

InsulBloc should be sprayed with plural component proportioning pump designed for polyurethane spray foam. The B-11-017 drum is connected to the resin pumps with the A2-000 drum connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1 by volume. The preheater and hose temperature should be set at 130°F to give a good pattern. Due to equipment variations, the application temperature settings may be adjusted to achieve a good spray pattern. For higher-pressure settings above 1,000 psi, temperature settings can be slightly lower.

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 10°F and 120°F. In this range the warmer the surface, the better the adhesion. NCFI has three grades of InsulBloc® foam for this application range: G-series designed for temperatures no lower than 50°F, M-series designed for temperatures as low as 20°F and the X-series, when processing must be conducted down to temperatures as low as 10°F. For best results, when surfaces to be sprayed are cooler than 60°F, a flash coat should be applied with the second coat following as soon as the original coat is no longer tacky to the touch.

BACTERIA AND FUNGUS RESISTANCE:

InsulBloc® is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM G-21 and E-1428 tests. The anti-microbial properties do not protect occupants of spaces insulated with InsulBloc® from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

VAPOR BARRIER PROTECTION ON COLD STORAGE APPLICATIONS:

When InsulBloc® is used in structures subject to continuous cold temperatures, such as coolers and freezers, a Class I moisture vapor barrier (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact NCFI for specific recommendations.

WEATHER PROTECTION OF FINISHED FOAM ON EXTERIOR APPLICATIONS:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available. On exterior applications where a masonry veneer or mechanically attached covering is to be installed, the InsulBloc® foam surface may be exposed to UV light up to 6 months.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-017, be separated from the interior of the building by a 15 minute thermal barrier of ½" gypsum board or other approved material. Refer to specific building codes for details. 11-017 has passed testing with the DC315 intumescent coating in lieu of the thermal barrier. When covering the foam with DC315, the foam thickness on walls is limited to a maximum of 5.5" and on roof/ceiling assemblies the maximum thickness is 9.5". The DC315 is applied at 14 mils wet film thickness, or 1 gallon per 115 square feet.

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before InsulBloc® is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the InsulBloc® system, contact an NCFI representative.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.





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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-11-017 G&M series
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--|
| 460-73-1 | 12% | 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) |
| Proprietary | <4 | Tertiary amine catalysts |
| 156-60-5 | <4 | Trans-1,2-Dichloroethylene |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by CF ₃ CH ₂ CHF ₂ . CF ₃ CH ₂ CHF ₂ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | TWA | None established |
| Trans-1,2-Dichloroethylene | TWA | 200ppm |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Green | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.23g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 60°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 06/26/2014 |
| Revision Date: | 10/27/2017 |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.



Technical Data Sheet

NCFI 11-036 InsulStar® SmartSPF™ Spray Foam System

DESCRIPTION:

11-036 InsulStar® SmartSPF™ is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam insulation system. This system has been formulated with highly insulating HFO as the blowing agent. The InsulStar® SmartSPF™ insulation system is suitable for application on the exterior or interior side of Type I, II, III, IV, & V buildings and ABAA specified designs as well as other insulation applications.

DISTINGUISHING CHARACTERISTICS:

- High R-Value
- ABAA Specified Product
- Moisture Vapor Retarder - Class II @ 1.3"
- Low GWP
- High Yields
- Class II Moisture Vapor Retarder @1.3"
- Meets ASTM E84, FS ≤25, SD ≤450 @ 4"
- FEMA Flood Resistance - Class 5
- Water Resistive Barrier (AC71) @ 1"
- Low VOC per CDPH Standard V 1.2, 2017
- Passed NFPA 285
- Compliant with ASTM C1029, IAPMO ES1000, & ICC 1100
- Approved with DC315, No-Burn Plus ThB, Flame Control 60-60A, and Staycell OneStep in lieu of a prescribed Thermal Barrier

TYPICAL PHYSICAL PROPERTIES¹:

| | |
|---|------------------------------------|
| Free Rise Core Density ² ASTM D1622 | 2 pcf |
| Closed Cell Content ASTM D6226 | >90% |
| R-value @ 1" ASTM C518 | 7.1 |
| Air Perm @1/2" & 75 Pa ASTM E2178 | ≤ 0.02 perms |
| Moisture Vapor Perm ASTM E96 @ 1" | 1.3 perms |
| Compressive Strength ASTM D1621 | 28 psi |
| Tensile Strength ASTM D1623 | 45 psi |
| Bacterial & Fungal Growth ASTM C1338 | No Growth ³ |
| Flammability ASTM E84 @ 4 inches | Flame Spread ≤25 Smoke Dev ≤450 |
| STC - ASTM E90 OITC - ASTM E90 | 31 ⁴ 24 ⁴ |
| Max Service Temperature | 180°F |

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- 2021 International Building Code Chapter 26 or Residential Code Section R316 & R806
- NCFI Product Stewardship Manual
- UES Evaluation Report 667
- UES Evaluation Report 340
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)
- Go to: polyurethane.americanchemistry.com and find the "Products, Resources, and Documents Library" tab

¹The above values are average values obtained from laboratory experiments and should serve only as guide lines.

²Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

³See page 4 for details.

⁴As measured in a 2" x 4" studwall assembly

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.



11-036 Application Information

| R-Values* | | | |
|---|---------------------------------------|---------------------|---|
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm | Installation Limitations with a prescriptive Thermal Barrier** |
| 1 | 7.1 | 1.3 | <p>No limit for Thickness in walls</p> <p>No limit for Thickness in ceilings/roof decks</p> |
| 2 | 14 | 0.65 | |
| 3 | 20 | 0.43 | |
| 3.5 | 23 | 0.37 | |
| 4.5 | 30 | 0.29 | |
| 5.5 | 37 | 0.24 | |
| 6 | 40 | 0.22 | |
| 7 | 47 | 0.19 | |
| 8 | 53 | 0.16 | |
| 9 | 60 | 0.14 | |
| *Note: As with all insulating materials, the R-value will vary with age and use conditions. | | | |

** The 11-036 system has been tested and approved for applications without a prescriptive Thermal Barrier covering when coated with one of the following: DC315, No-Burn Plus ThBr, Flame Control 60-60A intumescent coating, or Staycell ONE STEP[®] 502 spray foam. The maximum foam thickness is limited in the wall or ceiling/ roof decks. Contact NCFI for specific limitations and coverage rates.

| Property | Test Method | Test Condition | Result |
|--------------------------------------|--------------|-------------------------|--|
| Air Barrier (ABAA Specified Product) | ASTM E 2357 | Infiltration @ 1.57 psf | 1 inch thickness 0.0087 cfm/ft ² |
| | ASTM E 2178 | Exfiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² |
| Water Resistance | AATCC 127-98 | @ 56.5 ft | 1 inch thickness No failure |
| | ASTM E 331 | 6.24 psf | 1 inch thickness No Penetration |

InsulStar[®] Smart SPF[™] closed cell spray foam system is an approved Air and Water Resistive Barrier Evaluated Material per the Air Barrier Association of America (ABAA) and is certified per AC 71 as a Water Resistive Material when installed on the exterior side of walls. Exterior wall coverings of this spray foam system may be restricted. Contact NCFI for the current approvals.





11-036 Application Information

STORAGE OF 11-036 CHEMICALS:

Avoid storage in freezing temperatures. Storing chemicals above 90°F should be avoided as much as possible. Do not store in direct sunlight. The shelf life of unopened A2-000 is 24 months and the B11-036 is 6 months.

SPRAYING 11-036 CHEMICALS:

Chemicals should be between 65°F - 85°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time to stabilize back into the 65°F - 85°F range. Excessively warm chemicals should be cooled prior to opening the drums for safety and processing reasons. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The 11-036 system, consisting of the A2-000 and B11-036 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B drum is connected to the resin pumps and the A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1. The dispensing temperature should be set at approximately 130°F to give a good pattern.

Due to equipment variations, the application temperature settings may need to be adjusted to achieve a good spray pattern. For pressure settings above 1,000 psi, the temperature settings can be slightly lower.

APPLICATION GUIDELINES:

11-036 is suitable for application to most construction materials including wood, masonry, concrete, and metal. Application can be to the exterior or interior side of wall surfaces. 11-036 can be applied to surfaces that will be in contact with soil and intermittent contact with water, such as below grade exterior foundation and basement walls or under concrete slab floors. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.

| 11-036 Systems | Temperature Range Guideline |
|----------------|-----------------------------|
| SLOW | 70°F and up |
| REG | 40°-80°F |
| FAST | 10°-50°F |

The above table is a guideline for optimal product performance. For Elevations above 4500ft: Order the HA (high altitude) product line.





11-036 Application Information

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 10°F and 120°F when applying 11-036. Adhesion will be better towards the warmer end of this range. When surface temperatures fall below 60°F, adhesion may be aided by applying a thinner flash coat followed by a thicker pass while the flash coat is still warm but no longer tacky to the touch. Another technique to improve adhesion in studwall assemblies is to apply a cant along the side of the studs (picture framing), before filling in the center of the stud bay.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will not produce foam with the optimum properties. In the most extreme case, 11-036 could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum recommended pass thickness for 11-036 is 4 inches, which should be limited to warmer substrates. When applying pass thicknesses greater than 2 inches, wait 10 minutes or until the foam surface has cooled to ambient temperature before adding additional foam passes. Multiple layers can be applied to achieve the desired R-value.

ATTICS and CRAWL SPACES

11-036 has passed testing for application in limited access attics and crawl spaces without the code prescribed ignition barrier covering. The foam thickness can be up to 8" on wall cavities and 10" in ceiling cavities.

APPLICATION AROUND ELECTRICAL WIRES:

Refer to the NCFI Applicator Bulletin "Spray Foam Application Around Electrical Wires". Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. Light gauge wires which will be encapsulated in the foam layer should have the foam installed behind the wires and allowed to cool prior to applying a top layer to cover the wire. Use a shallow lift of 3/4" of foam to cover the wire, then wait about 2 minutes to allow the foam to cool before adding more foam passes to achieve the desired R-value.

APPLICATION AROUND PLASTIC PIPES:

Refer to the NCFI Applicator Bulletin "Spraying Polyurethane Foam to CPVC and Other Types of Plastic Pipes". 11-036 system can be applied in contact with plastic pipes. The pipes must not be pressurized during the foam application. The foam must be applied in a manner where the expanding foam does not distort the pipe. The foam pass applied in contact with the pipe should not exceed 2" thickness in order to prevent excessive exothermic heat at the pipe to foam interface. Allow 2 minutes cooling between each additional foam pass.

VAPOR BARRIER PROTECTION ON EXTREME TEMPERATURE INSULATION APPLICATIONS:

When 11-036 is applied to insulate buildings which maintain continuous cold or hot temperatures, such as coolers/freezers or indoor swimming pools, a Class I moisture vapor retarder (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact the design professional or NCFI for specific recommendations.





11-036 Application Information

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and airborne particulates. For interior applications the building area must be vented with fresh air to dissipate the particulates. The amount of air flow and time for venting will vary based on each situation. Details regarding ventilation is provided in the Spray Foam Coalition document "Ventilation Considerations for Spray Polyurethane Foam" found in the NCFI Product Stewardship Manual (PSM). SPF contractors should refer to this guidance prior to beginning any spray foam application project. Reentry time and re-occupancy time is provided in the NCFI Technical Bulletin "Ventilation Requirements for Reentry of Spaces After Spraying Closed Cell Spray Foams".

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before 11-036 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. For any questions regarding the application of the 11-036 system, contact an NCFI representative.

BACTERIA AND FUNGUS RESISTANCE:

InsulStar® is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM C1338 test. The anti-microbial properties do not protect occupants of spaces insulated with InsulStar® from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

WEATHER PROTECTION OF FINISHED FOAM ON EXTERIOR APPLICATIONS:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available. On exterior applications where a masonry veneer or mechanically attached covering is to be installed, the InsulStar® SmartSPF™ foam surface may be exposed to UV light up to 6 months.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-036, to be separated from the interior of the building by a 15 minute thermal barrier of ½" gypsum board or other approved material. Refer to UES ER 667 for details. When Fire Resistive Wall Assemblies are required, contact NCFI Polyurethanes for specific alternate approvals for InsulStar® SmartSPF™.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.





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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-11-036
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|---|
| 102687-65-0 | 5-15% | Trans-1-Chloro-3,3,3-trifluoropropene ($\text{CF}_3\text{HC}=\text{CHCl}$ or HFO-1233zd) |
| 156-60-5 | < 3% | Trans-1,2-Dichloroethylene |
| Proprietary | 3 – 6% | Tertiary amine catalysts |
| Proprietary | < 0.5% | Organometallic catalyst |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO_2 |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by $\text{CF}_3\text{HC}=\text{CHCl}$. $\text{CF}_3\text{HC}=\text{CHCl}$ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| Trans-1-Chloro-3,3,3-trifluoropropene ¹ (CF ₃ HC=CHCl or HFO-1233zd) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | | None established |
| Organometallic catalysts ¹ | | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Dark Blue | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.20g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 66°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | B component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (Y or N): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 05/08/2017 |
| Revision Date: | 10/23/2018 |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.



Technical Data Sheet

NCFI 11-037 InsulBloc® SmartSPF™ Spray Foam System

DESCRIPTION:

11-037 InsulBloc® SmartSPF™ is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam insulation system. This system has been formulated with highly insulating HFO as the blowing agent. The InsulBloc® SmartSPF™ insulation system is suitable for application on the exterior or interior side of Type I, II, III, IV, & V buildings and ABAA specified designs as well as other insulation applications.

DISTINGUISHING CHARACTERISTICS:

- High R-Value
- ABAA Specified Product
- Moisture Vapor Retarder - Class II @ 1.3"
- Low GWP
- High Yields
- Class II Moisture Vapor Retarder @1.3"
- Meets ASTM E84, FS ≤25, SD ≤450 @ 4"
- FEMA Flood Resistance - Class 5
- Water Resistive Barrier (AC71) @ 1"
- Low VOC per CDPH Standard V 1.2, 2017
- Passed NFPA 285
- Compliant with ASTM C1029, IAPMO ES1000, & ICC 1100
- Approved with DC315, No-Burn Plus ThB, Flame Control 60-60A, and Staycell OneStep in lieu of a prescribed Thermal Barrier

TYPICAL PHYSICAL PROPERTIES¹:

| | |
|---|------------------------------------|
| Free Rise Core Density ² ASTM D1622 | 2 pcf |
| Closed Cell Content ASTM D6226 | >90% |
| R-value @ 1" ASTM C518 | 7.1 |
| Air Perm @1/2" & 75 Pa ASTM E2178 | ≤ 0.02 perms |
| Moisture Vapor Perm ASTM E96 @ 1" | 1.3 perms |
| Compressive Strength ASTM D1621 | 28 psi |
| Tensile Strength ASTM D1623 | 45 psi |
| Bacterial & Fungal Growth ASTM C1338 | No Growth ³ |
| Flammability ASTM E84 @ 4 inches | Flame Spread ≤25 Smoke Dev ≤450 |
| STC - ASTM E90 OITC - ASTM E90 | 31 ⁴ 24 ⁴ |
| Max Service Temperature | 180°F |

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- 2021 International Building Code Chapter 26 or Residential Code Section R316 & R806
- NCFI Product Stewardship Manual
- UES Evaluation Report 667
- UES Evaluation Report 340
- API Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction (AX230)
- Go to: polyurethane.americanchemistry.com and find the "Products, Resources, and Documents Library" tab

¹The above values are average values obtained from laboratory experiments and should serve only as guide lines.

²Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

³See page 4 for details.

⁴As measured in a 2" x 4" studwall assembly

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.



11-037 Application Information

| R-Values* | | | |
|---|---------------------------------------|---------------------|---|
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm | Installation Limitations with a prescriptive Thermal Barrier** |
| 1 | 7.1 | 1.3 | <p>No limit for Thickness in walls</p> <p>No limit for Thickness in ceilings/roof decks</p> |
| 2 | 14 | 0.65 | |
| 3 | 20 | 0.43 | |
| 3.5 | 23 | 0.37 | |
| 4.5 | 30 | 0.29 | |
| 5.5 | 37 | 0.24 | |
| 6 | 40 | 0.22 | |
| 7 | 47 | 0.19 | |
| 8 | 53 | 0.16 | |
| 9 | 60 | 0.14 | |
| *Note: As with all insulating materials, the R-value will vary with age and use conditions. | | | |

** The 11-037 system has been tested and approved for applications without a prescriptive Thermal Barrier covering when coated with one of the following: DC315, No-Burn Plus ThBr, Flame Control 60-60A intumescent coating, or Staycell ONE STEP® 502 spray foam. The maximum foam thickness is limited in the wall or ceiling/roof decks. Contact NCFI for specific limitations and coverage rates.

| Property | Test Method | Test Condition | Result |
|--------------------------------------|--------------|-------------------------|--|
| Air Barrier (ABAA Specified Product) | ASTM E 2357 | Infiltration @ 1.57 psf | 1 inch thickness 0.0087 cfm/ft ² |
| | ASTM E 2178 | Exfiltration @ 1.57 psf | 1 inch thickness 0.0000 cfm/ft ² |
| Water Resistance | AATCC 127-98 | @ 56.5 ft | 1 inch thickness No failure |
| | ASTM E 331 | 6.24 psf | 1 inch thickness No Penetration |

InsulBloc® Smart SPF™ closed cell spray foam system is an approved Air and Water Resistive Barrier Evaluated Material per the Air Barrier Association of America (ABAA) and is certified per AC 71 as a Water Resistive Material when installed on the exterior side of walls. Exterior wall coverings of this spray foam system may be restricted. Contact NCFI for the current approvals.





11-037 Application Information

STORAGE OF 11-037 CHEMICALS:

Avoid storage in freezing temperatures. Storing chemicals above 90°F should be avoided as much as possible. Do not store in direct sunlight. The shelf life of unopened A2-000 is 24 months and the B11-037 is 6 months.

SPRAYING 11-037 CHEMICALS:

Chemicals should be between 65°F - 85°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time to stabilize back into the 65°F - 85°F range. Excessively warm chemicals should be cooled prior to opening the drums for safety and processing reasons. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The 11-037 system, consisting of the A2-000 and B11-037 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B drum is connected to the resin pumps and the A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1. The dispensing temperature should be set at approximately 130°F to give a good pattern.

Due to equipment variations, the application temperature settings may need to be adjusted to achieve a good spray pattern. For pressure settings above 1,000 psi, the temperature settings can be slightly lower.

APPLICATION GUIDELINES:

11-037 is suitable for application to most construction materials including wood, masonry, concrete, and metal. Application can be to the exterior or interior side of wall surfaces. 11-037 can be applied to surfaces that will be in contact with soil and intermittent contact with water, such as below grade exterior foundation and basement walls or under concrete slab floors. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.

| 11-037 Systems | Temperature Range Guideline |
|----------------|-----------------------------|
| SLOW | 70°F and up |
| REG | 40°-80°F |
| FAST | 10°-50°F |

The above table is a guideline for optimal product performance. For Elevations above 4500ft: Order the HA (high altitude) product line.





11-037 Application Information

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 10°F and 120°F when applying 11-037. Adhesion will be better towards the warmer end of this range. When surface temperatures fall below 60°F, adhesion may be aided by applying a thinner flash coat followed by a thicker pass while the flash coat is still warm but no longer tacky to the touch. Another technique to improve adhesion in studwall assemblies is to apply a cant along the side of the studs (picture framing), before filling in the center of the stud bay.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will not produce foam with the optimum properties. In the most extreme case, 11-037 could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum recommended pass thickness for 11-037 is 4 inches, which should be limited to warmer substrates. When applying pass thicknesses greater than 2 inches, wait 10 minutes or until the foam surface has cooled to ambient temperature before adding additional foam passes. Multiple layers can be applied to achieve the desired R-value.

ATTICS and CRAWL SPACES

11-037 has passed testing for application in limited access attics and crawl spaces without the code prescribed ignition barrier covering. The foam thickness can be up to 8" on wall cavities and 10" in ceiling cavities.

APPLICATION AROUND ELECTRICAL WIRES:

Refer to the NCFI Applicator Bulletin "Spray Foam Application Around Electrical Wires". Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. Light gauge wires which will be encapsulated in the foam layer should have the foam installed behind the wires and allowed to cool prior to applying a top layer to cover the wire. Use a shallow lift of 3/4" of foam to cover the wire, then wait about 2 minutes to allow the foam to cool before adding more foam passes to achieve the desired R-value.

APPLICATION AROUND PLASTIC PIPES:

Refer to the NCFI Applicator Bulletin "Spraying Polyurethane Foam to CPVC and Other Types of Plastic Pipes". 11-037 system can be applied in contact with plastic pipes. The pipes must not be pressurized during the foam application. The foam must be applied in a manner where the expanding foam does not distort the pipe. The foam pass applied in contact with the pipe should not exceed 2" thickness in order to prevent excessive exothermic heat at the pipe to foam interface. Allow 2 minutes cooling between each additional foam pass.

VAPOR BARRIER PROTECTION ON EXTREME TEMPERATURE INSULATION APPLICATIONS:

When 11-037 is applied to insulate buildings which maintain continuous cold or hot temperatures, such as coolers/freezers or indoor swimming pools, a Class I moisture vapor retarder (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact the design professional or NCFI for specific recommendations.





11-037 Application Information

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and airborne particulates. For interior applications the building area must be vented with fresh air to dissipate the particulates. The amount of air flow and time for venting will vary based on each situation. Details regarding ventilation is provided in the Spray Foam Coalition document "Ventilation Considerations for Spray Polyurethane Foam" found in the NCFI Product Stewardship Manual (PSM). SPF contractors should refer to this guidance prior to beginning any spray foam application project. Reentry time and re-occupancy time is provided in the NCFI Technical Bulletin "Ventilation Requirements for Reentry of Spaces After Spraying Closed Cell Spray Foams".

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before 11-037 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. For any questions regarding the application of the 11-037 system, contact an NCFI representative.

BACTERIA AND FUNGUS RESISTANCE:

InsulBloc® is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM C1338 test. The anti-microbial properties do not protect occupants of spaces insulated with InsulBloc® from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

WEATHER PROTECTION OF FINISHED FOAM ON EXTERIOR APPLICATIONS:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available. On exterior applications where a masonry veneer or mechanically attached covering is to be installed, the InsulBloc®SmartSPF™ foam surface may be exposed to UV light up to 6 months.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-037, to be separated from the interior of the building by a 15 minute thermal barrier of ½" gypsum board or other approved material. Refer to UES ER 667 for details. When Fire Resistive Wall Assemblies are required, contact NCFI Polyurethanes for specific alternate approvals for InsulBloc®SmartSPF™.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.



Dalton, GA

Mount Airy, NC

Missouri City, TX

Section 1: Identification

Product Identifier

Trade Name: B-11-037
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | | | |
|-----------------|--|-------------------------|------------------------|
| Name: | NCFI Polyurethanes | Phone: | (800) 346-8229 |
| Address: | 1515 Carter St Mount Airy, NC 27030 | Fax: | (336) 789-9586 |
| Website: | www.NCFI.com | Emergency Phone: | CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|---|--|
| GHS Classification: | |
| <ul style="list-style-type: none"> • Skin irritation, Category 3 | <ul style="list-style-type: none"> • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|---|--|
| Hazard Statements: | |
| <ul style="list-style-type: none"> • May cause skin irritation • May cause respiratory irritation | <ul style="list-style-type: none"> • May cause eye irritation |

| | |
|---|--|
| Precautionary Statements: | |
| <ul style="list-style-type: none"> • Do not breathe fume/gas/mist/vapors/spray • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. • IF ON SKIN: Wash with plenty of soap and water | <ul style="list-style-type: none"> • Wear protective gloves/eye protection/face protection • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |

Other Hazards:



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Missouri City, TX

Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|---|
| 102687-65-0 | 5-15% | Trans-1-Chloro-3,3,3-trifluoropropene ($\text{CF}_3\text{HC}=\text{CHCl}$ or HFO-1233zd) |
| 156-60-5 | < 3% | Trans-1,2-Dichloroethylene |
| Proprietary | 3 – 6% | Tertiary amine catalysts |
| Proprietary | < 0.5% | Organometallic catalyst |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO_2 |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by $\text{CF}_3\text{HC}=\text{CHCl}$. $\text{CF}_3\text{HC}=\text{CHCl}$ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |

Dalton, GA

Mount Airy, NC

Missouri City, TX

Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| Trans-1-Chloro-3,3,3-trifluoropropene ¹ (CF ₃ HC=CHCl or HFO-1233zd) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | | None established |
| Organometallic catalysts ¹ | | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Light Brown | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.20g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 66°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |

Dalton, GA

Mount Airy, NC

Missouri City, TX

Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | B component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (Y or N): | N |
| Special precautions: | None |



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Missouri City, TX

Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 05/08/2017 |
| Revision Date: | 10/23/2018 |
| Revision Date: | 11/15/2023 |

IMPORTANT NOTICES

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Technical Data Sheet

NCFI 11-035 AgriThane™ Spray Foam System

DESCRIPTION:

11-035 AgriThane is a two component, self-adhering, seamless, closed cell, spray applied polyurethane foam insulation system. This system has been formulated with highly insulating HFO as the blowing agent. 11-035 system is suitable for application on tanks and temperature controlled structures, and for air sealing structures as part of the NCFI AgriThane insulation system.

DISTINGUISHING CHARACTERISTICS:

- High R-Value
- Low GWP
- High Yields
- Class II Moisture Vapor Retarder @1.3"
- Meets ASTM E84, FS ≤25, SD ≤450 @ 4"
- FEMA Flood Resistance - Class 5
- Water Resistive Barrier (AC71) @ 1"

For proper use of this NCFI insulating material refer to the NCFI Application Information and any of the following codes or guides:

- 2021 International Building Code Chapter 26
- NCFI Product Stewardship Manual
- Fire Safety Guidelines for Use of Rigid Polyurethane and Polyisocyanurate Foam Insulation in Building Construction at americanchemistry.com in the "Products, Resources, and Documents Library" tab

TYPICAL PHYSICAL PROPERTIES¹:

| | |
|---|------------------------------------|
| Free Rise Core Density ² ASTM D1622 | 2 pcf |
| Closed Cell Content ASTM D6226 | >90% |
| R-value @ 1" ASTM C518 | 7.1 |
| Air Perm @1/2" & 75 Pa ASTM E2178 | ≤ 0.02 perms |
| Moisture Vapor Perm ASTM E96 @ 1" | 1.3 perms |
| Compressive Strength ASTM D1621 | 28 psi |
| Tensile Strength ASTM D1623 | 45 psi |
| Bacterial & Fungal Growth ASTM C1338 | No Growth ³ |
| Flammability ASTM E84 @ 4 inches | Flame Spread ≤25 Smoke Dev ≤450 |
| Max Service Temperature | 180°F |

| | |
|------|-----|
| 1" | 7.1 |
| 2" | 14 |
| 3" | 20 |
| 3.5" | 24 |
| 5.5" | 37 |

¹The above values are average values obtained from laboratory experiments and should serve only as guide lines.

²Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

³See page 4 for details.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.



11-035 Application Information

STORAGE OF 11-035 CHEMICALS:

Avoid storage in freezing temperatures. Storing chemicals above 90°F should be avoided as much as possible. Do not store in direct sunlight. The shelf life of unopened A2-000 is 24 months and the B11-035 is 6 months.

SPRAYING 11-035 CHEMICALS:

Chemicals should be between 65°F - 85°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time to stabilize back into the 65°F - 85°F range. Excessively warm chemicals should be cooled prior to opening the drums for safety and processing reasons. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first to allow any built-up vapor pressure to stabilize before completely removing. **B component will froth at elevated temperatures.** Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

| 11-035 Systems | Temperature Range Guideline |
|---|-----------------------------|
| SLOW | 70°F and up |
| REG | 40°-80°F |
| FAST | 10°-50°F |
| The above table is a guideline for optimal product performance. For Elevations above 4500ft: Order the HA (high altitude) product line. | |

EQUIPMENT AND COMPONENT RATIOS:

The 11-035 system, consisting of the A2-000 and B11-035 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B drum is connected to the resin pumps and the A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1 to 1. The dispensing temperature should be set at approximately 130°F to give a good pattern with the pump dynamic pressure at 1000 psi.

Due to equipment variations, and the ambient air temperature and substrate temperature, the application temperature and pressure settings may need to be adjusted to achieve a good spray pattern with the proper chemical reaction time.

APPLICATION GUIDELINES:

11-035 is suitable for application to most construction materials including wood, masonry, concrete, and metal. Application can be to the exterior or interior side of wall surfaces. 11-035 can be applied to surfaces that will be in contact with soil and intermittent contact with water, such as below grade exterior foundation and basement walls or under concrete slab floors. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

No flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area of the foam application 24 hours before the application. No such chemical can be sprayed after the foam application until the foam has cooled to room temperature.





11-035 Application Information

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

The surface should be between 10°F and 120°F when applying 11-035. Adhesion will be better towards the warmer end of this range. When surface temperatures fall below 60°F, adhesion may be aided by applying a thinner flash coat followed by a thicker pass while the flash coat is still warm but no longer tacky to the touch. Another technique to improve adhesion in studwall assemblies is to apply a cant along the side of the studs (picture framing), before filling in the center of the stud bay.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. Foam which is applied too thick in single passes can build temperatures which will not produce foam with the optimum properties. In the most extreme case, 11-035 could reach dangerously high temperatures inside the finished foam which could lead to splitting, charring, or even spontaneous combustion. The maximum recommended pass thickness for 11-035 is 4 inches, which should be limited to warmer substrates. When applying pass thicknesses greater than 2 inches, wait 10 minutes or until the foam surface has cooled to ambient temperature before adding additional foam passes. Multiple layers can be applied to achieve the desired R-value.

APPLICATION AROUND ELECTRICAL WIRES:

Refer to the NCFI Applicator Bulletin "Spray Foam Application Around Electrical Wires". Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch and distort the wires. Light gauge wires which will be encapsulated in the foam layer should have the foam installed behind the wires and allowed to cool prior to applying a top layer to cover the wire. Use a shallow lift of 3/4" of foam to cover the wire, then wait about 2 minutes to allow the foam to cool before adding more foam passes to achieve the desired R-value.

APPLICATION AROUND PLASTIC PIPES:

Refer to the NCFI Applicator Bulletin "Spraying Polyurethane Foam to CPVC and Other Types of Plastic Pipes". 11-035 system can be applied in contact with plastic pipes. The pipes must not be pressurized during the foam application. The foam must be applied in a manner where the expanding foam does not distort the pipe. The foam pass applied in contact with the pipe should not exceed 2" thickness in order to prevent excessive exothermic heat at the pipe to foam interface. Allow 2 minutes cooling between each additional foam pass.

VAPOR BARRIER PROTECTION ON EXTREME TEMPERATURE INSULATION APPLICATIONS:

When 11-035 is applied to insulate buildings which maintain continuous cold or hot temperatures, such as coolers/freezers or indoor swimming pools, a Class I moisture vapor retarder (0.1 perm or less) is normally required on the "warm" side of the foam insulation. Contact the design professional or NCFI for specific recommendations.





11-035 Application Information

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and airborne particulates. For interior applications the building area must be vented with fresh air to dissipate the particulates. The amount of air flow and time for venting will vary based on each situation. Details regarding ventilation is provided in the Spray Foam Coalition document "Ventilation Considerations for Spray Polyurethane Foam" found in the NCFI Product Stewardship Manual (PSM). SPF contractors should refer to this guidance prior to beginning any spray foam application project. Reentry time and re-occupancy time is provided in the NCFI Technical Bulletin "Ventilation Requirements for Reentry of Spaces After Spraying Closed Cell Spray Foams".

OTHER APPLICATION AND SAFETY CONSIDERATIONS:

Before 11-035 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product data sheet. If there is a question regarding some aspect of the planned application, consult with NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. For any questions regarding the application of the 11-035 system, contact an NCFI representative.

BACTERIA AND FUNGUS RESISTANCE:

AgriThane™ is naturally able to inhibit the growth of bacteria and fungus (mold) per the ASTM C1338 test. The anti-microbial properties do not protect occupants of spaces insulated with AgriThane™ from potential deleterious effects of molds, mold spores, or disease organisms that may be present in the environment.

WEATHER PROTECTION OF FINISHED FOAM ON EXTERIOR APPLICATIONS:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available. On exterior applications where a masonry veneer or mechanically attached covering is to be installed, the AgriThane™ foam surface may be exposed to UV light up to 6 months.

CODE-COMPLIANT FIRE RESISTANCE:

Building Codes require foam plastic insulation, such as 11-035, to be separated from the interior of the building by a 15 minute thermal barrier of ½" gypsum board or other approved material.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.





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Section 1: Identification

Product Identifier

Trade Name: B-11-035
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--|
| 102687-65-0 | < 10% | Trans-1-Chloro-3,3,3-trifluoropropene (CF ₃ HC=CHCl or HFO-1233zd) |
| Proprietary | 2 – 5% | Tertiary amine catalysts |
| Proprietary | < 0.5% | Organometallic catalyst |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|---|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by CF ₃ HC=CHCl. CF ₃ HC=CHCl burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| Trans-1-Chloro-3,3,3-trifluoropropene ¹ (CF ₃ HC=CHCl or HFO-1233zd) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | | None established |
| Organometallic catalysts ¹ | | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Light Brown | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.20g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 66°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Salt Lake City, UT

Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (Y or N): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 03/24/2017 |
| Revision Date: | 10/27/2017 |

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TECHNICAL DATA SHEET

PROFILL OC-500 PLUS

DESCRIPTION:

PROFILL OC-500 PLUS is a two component, one-to-one by volume, no-mix, self-adhering, seamless spray applied open cell polyurethane insulation system. This Profoam system has been formulated with water as the blowing agent and does not contain CFC, HCFC, HFC or formaldehyde. PROFILL OC-500 PLUS is suitable for use in Type I to V construction.

DISTINGUISHING CHARACTERISTICS:

- Eliminates Convective Air Movement in Building Assemblies
- Good Sound Barrier
- High Yields
- Good Dimensional Stability
- Meets ASTM E84 Class A
- Air Impermeable Insulation
- Low VOC per CDPH Standard version 1.2

EQUIPMENT AND COMPONENT RATIOS:

The PROFILL PLUS system, consisting of the PROFILL PLUS B Side drum and the A2-000 A Side drum, is formulated for spraying with a two component pump specifically designed for spray foam systems. The B drum is connected to the resin pump and the A drum is connected to the isocyanate pump. The proportioning pump ratio is 1:1. Recommended proportioner settings are:

| | |
|-------------------------|-----------|
| Pre-heater Temperatures | 130-140°F |
| Hose Temperature | 130-140°F |
| Pressure Static | 1200 psi |
| Pressure Dynamic | 1000 psi |

Note: These are only recommended starting points, when using a 02 mix chamber, and may need to be adjusted according to the specific proportioner, varying hose lengths, ambient and substrate temperatures, and conditions. For additional assistance contact Profoam.

TYPICAL PHYSICAL PROPERTIES:

| | |
|--|--|
| Core Density ASTM C1622 | 0.4 to 0.5 pcf |
| R-Value ¹ ASTM C518 | R 3.8 @ 1" |
| Moisture Vapor Perm ASTM E96 Desiccant Method | 28 @ 1" |
| Air Permeance @ 75Pa ASTM E2178 | 0.02 L/s-m ² @ 6.75" |
| Max Service Temperature | 180°F |
| Flammability - ASTM E84 | @ 4 inches Flame Spread ≤ 25 Smoke Dev ≤ 450 |

Note: The above values are average values obtained from laboratory experiments and should serve only as guidelines. Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

¹R-value tested at 90 days aging.

ATTIC AND CRAWLSPACE APPLICATION:

The PROFILL PLUS system is approved for use with the DC315 intumescent coating. In lieu of the code prescribed ignition barrier in attics and crawlspaces, the foam can be installed up to 8 inches thick on vertical surfaces and up to 14 inches thick on horizontal and overhead surfaces when covered with 7 wet mils of DC315. In lieu of the code prescribed thermal barrier covering, PROFILL PLUS can be installed up to 8 inches thick in walls and 14 inches thick on the roof/ceiling when covered with 14 wet mils of DC315.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

PROFILL PLUS APPLICATION INFORMATION

STORAGE AND USE OF CHEMICALS:

The chemicals should be between 60°F and 85°F for proper processing through the spray equipment. Chemicals shipped during winter or summer months may need extra time in moderate temperature storage to stabilize back into the proper processing temperature range. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. Avoid storage above 90°F as much as possible. Store above 35°F and keep temperature of chemicals near 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The shelf life of Profoam PROFILL PLUS is 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

| R-Value* Chart | |
|----------------|--|
| Foam Thickness | R-value (°F·hr·ft ² / Btu) |
| 1.0" | 3.8 |
| 3.5" | 13 |
| 5.5" | 21 |
| 8" | 30 |
| 11" | 42 |
| 14" | 53 |

Note: As with all insulating materials, the R-value will vary with age and use conditions.

*Based on 90 day aged testing of R-values at 1" and 3.5"

SPECIAL HANDLING NOTICE:

Care should be taken to avoid the introduction of any other chemical system (such as closed cell spray foams) into the B side drum of PROFILL PLUS. It is recommended, at a minimum, the use of a dedicated stainless steel transfer pump for this material to avoid the possibility of cross contamination. User should expect be a degree of waste in spraying out the changeover between closed cell to open cell foams. Under no circumstances should the user bleed out spray lines of these incompatible foams back into the drum.

PREPARATION OF SURFACE TO BE SPRAYED:

All surfaces to be sprayed should be clean, dry, and free of dew or frost. All metal to which foam is to be applied must be free of oil, grease, etc.

MOISTURE VAPOR RETARDER USE:

For applications in colder climates, building codes may require a vapor retarder on the warm side of the open cell foam. Consult the local building codes for information or contact Profoam for further guidance.

OPTIMUM ADHESION TEMPERATURE OF SURFACE TO BE SPRAYED:

On general work where the surface to be sprayed will remain at ambient temperature or cooler, the surface should be between 50°F and 120°F. In this range the warmer the surface the better the adhesion. Minimum pass thickness for proper cures must be no less than 3 inches. In some cases the surface may require a primer. When surfaces are cooler, the spray applicator should spray a test area approximately 20 square feet and check for proper adhesion and cell structure. If both are satisfactory, then the spray application may continue.

CODE-COMPLIANT FIRE RESISTANCE:

Building codes require the spray foam be separated from the interior of buildings with an approved thermal barrier. Minimum ½ inch gypsum board or other tested and approved material may be installed as a thermal barrier. DC315 may be used in lieu of the thermal barrier. The foam can be installed up to 8 inches in walls and 14 inches in ceilings when coated with 14 wet mils of DC315. Contact Profoam for additional information.

For proper use of this Profoam insulating material refer to the Profoam Application Information and any of the following codes or guides:

- 2015 or 2018 IBC, Section 2603
- 2015 or 2018 IRC, Section R316
- Go to: polyurethane.americanchemistry.com and find the "Products, Resources, and Documents Library" tab.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. Profoam warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and Profoam expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve Profoam of all liability with respect to the material or the use thereof.

12-008 SPRAY FOAM SYSTEM TECHNICAL DATA SHEET

DESCRIPTION:

InsulStar®Light 12-008 is a two component, one-to-one by volume, no-mix, self-adhering, seamless spray applied open-cell polyurethane insulation system. InsulStar®Light has been formulated with water as the blowing agent and does not contain CFC, HCFC, HFC or formaldehyde. InsulStar®Light is suitable for use in Type I, II, III, IV & V construction.

DISTINGUISHING CHARACTERISTICS:

- Eliminates Convective Air Movement in Building Assemblies
- Good Sound Barrier
- High Yields
- Good Dimensional Stability
- Meets ASTM E84 Class A
- Air Impermeable Insulation
- Low VOC per CDPH Standard version 1.2 2017
- Fungal Resistant—ASTM C1338

| R-Value* Chart ASTM C518 | |
|--------------------------|--|
| Foam Thickness | R-value (°F·hr·ft ² / Btu) |
| 1.0" | 3.7 |
| 3.5" | 13 |
| 5.5" | 21 |
| 8" | 31 |
| 10" | 38 |
| 11" | 42 |
| 14" | 54 |
| 16" | 61 |

Note: As with all insulating materials, the R-value will vary with age and use conditions.

*Based on 90 day aged testing of R-values at 1" and 3.5".

TYPICAL PHYSICAL PROPERTIES:

| | |
|--|--|
| Core Density ASTM C1622 | 0.4 - 0.5 pcf |
| Vapor Permeance ASTM E96 Desiccant Method | 28 perm @ 1" |
| Air Permeance @ 75Pa ASTM E2178 | <0.02 L/s·m ² @ 4" |
| Flammability - ASTM E84 | @ 4 inches Flame Spread ≤ 25 Smoke Dev ≤ 450 |
| Potential Heat—NFPA 259 | 506 Btu/ft ² @ 1" |
| UL 94 | HF-1 |
| Sound Transmission - ASTM E90 | STC - 41* |
| Noise Reduction - ASTM C423 | NRC - 0.75 |
| Sound Absorption - ASTM C423 | SAA - 0.71 |
| Max Service Temperature | 180°F |

Note: The above values are average values obtained from laboratory experiments and should serve only as guidelines. Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

*In a 2"x 6" wall assembly.

For proper use of this NCFI insulating material refer to the NCFI Product Stewardship Manual and the following codes or guides:

- CCRR-0323 Code Compliance Research Report
- 2018 or 2021 International Building Code (IBC) Chapter 26 or Residential Code (IRC) Section R316 & R806
- Products, Resources, and Documents Library at polyurethane.americanchemistry.com

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

12-008 Application Information

PREPARATION OF SURFACE TO BE SPRAYED:

To ensure proper adhesion, all substrate surfaces should be dry and clean of dust, flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

STORAGE AND USE OF CHEMICALS:

The 12-008 system consists of the A2-000 component and the 12-008 B component. NCFI recommends the chemicals not be allowed to freeze. If freezing suspected, refer to NCFI Technical Bulletin "Spray Foam Chemicals Temperature Control & Storage". For proper processing through the spray foam proportioning pumps, the chemicals should be between 60°F and 85°F.

Chemicals shipped during winter or summer months may need extra time to reach the proper processing temperature range. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. When stored between 40°F and 90°F, the shelf life of unopened A2-000 is 24 months and 12-008 B is 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Partially loosen the small bung first allowing any built up gas pressure to escape before completely removing it. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to this chemical system SDS or go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The 12-008 system, consisting of the 12-008 B drum and the A2-000 A drum, is formulated for spraying with a two component pump specifically designed for spray foam systems. The B component is connected to the resin pump and the A drum is connected to the isocyanate pump. The proportioning pump ratio is 1:1. DO NOT mix the B-side chemical while spraying. If the drum has been sitting for a number of weeks, the chemical may be stirred with a drum mixer up to 10 minutes prior to spraying.

Recommended proportioner starting settings are:

| | |
|-------------------------|-----------|
| Pre-heater Temperatures | 130-140°F |
| Hose Temperature | 130-140°F |
| Pressure Static | 1200 psi |
| Pressure Dynamic | 1000 psi |

Note: These are only recommended starting points, and may need to be adjusted according to the specific mixing chamber, proportioner, hose lengths, ambient and substrate temperatures, and conditions. Adjust the settings to achieve a good spray pattern.

CHANGING OVER FROM DIFFERENT SYSTEMS:

Closed cell and other foams are incompatible with the B side of 12-008. Therefore care should be taken to avoid the introduction of any other chemical system into the B side drum of 12-008. It is recommended to dedicate a stainless steel transfer pump to the B side of 12-008 to avoid the possibility of cross contamination. Before applying the 12-008 in a building assembly, spray out all of the changeover material, under pressure, onto cardboard or plastic film to flush out the hoses and pump. Under no circumstances should the user bleed out the spray lines containing incompatible foam back into the B-side 12-008 drum.

OPTIMUM SUBSTRATE TEMPERATURE:

For general work, the surface to be sprayed should be between 50°F and 120°F. Within this range, the warmer the surface, the better the adhesion. For surfaces below 50°F, the spray applicator should spray a test area approximately 25 square feet and check for proper adhesion and cell structure. If both are satisfactory, then the spray application may continue.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. The thicker the pass, the more heat will be generated. Heat will build up if the user does not wait for the foam to cool after each pass. Too much heat will degrade the foam's cell structure and the foam won't have optimum properties. The minimum pass thickness for proper chemical reaction is 3 inches. The maximum pass thickness is 10 inches. When spraying more than 6 inches in a single pass, the applicator must closely monitor the foam's adhesion and cell structure. Then wait 10 minutes or until the foam surface has cooled to ambient temperature before spraying on top of it. The number of passes to achieve the total insulation value is not limited.

ATTIC AND CRAWLSPACE APPLICATION:

Building codes require an ignition barrier material over foam plastic insulations installed in attics and crawlspaces. The 12-008 system is approved for use with DC315 intumescent coating in lieu of the code-prescribed ignition barrier in attics and crawlspaces. The foam can be installed up to 8 inches thick on vertical surfaces and up to 14 inches thick on horizontal and overhead surfaces when covered with 7 wet mils of DC315.

UNVENTED ATTIC APPLICATION:

The 12-008 system was tested per IBC Section 2603.9 and IRC Section R316.6 to qualify for application in an unvented attic with no ignition barrier covering. The attic space must be constructed in a specific manner with the attic access designed and installed in the attic floor. The 12-008 must be applied within the limitations of the approval. Refer to Intertek CCRR - 0323 for specific details of the construction requirements. The 12-008 spray foam installed in unvented attics should be in compliance with Section R806.5 of the 2021 IRC.

12-008 Application Information

APPLICATION AND SAFETY CONSIDERATIONS:

Before 12-008 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product application guideline. If there is a question regarding an aspect of the planned application, contact NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the 12-008 system, contact NCFI.

APPLICATION GUIDELINES:

12-008 is suitable for application to most construction materials including wood, masonry, concrete, and metal. 12-008 should not be applied to surfaces that will be in contact with soil or intermittent contact with water. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface rust, ice or frost, oil, grease, etc. Uncoated metals may require a primer coat. 24 hours before spraying the foam, no flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area where the foam will be applied. After the foam has been applied, no flammable chemical can be sprayed until the foam has cooled to ambient temperature.

CODE-COMPLIANT FIRE RESISTANCE:

Building codes require the spray foam to be separated from the interior of buildings with an approved thermal barrier of ½ inch minimum thickness gypsum board or other approved thermal barrier. There is no thickness limitation when the foam is covered with a thermal barrier. In lieu of the thermal barrier, the 12-008 can be coated with DC315 or No-Burn Plus ThB intumescent coating. The foam thickness is limited to 8 inches in walls and 14 inches in roof/ceiling assemblies with DC315. The foam thickness is limited to 8½ inches in walls and 14 inches in roof/ceiling assemblies when coated with No-Burn Plus ThB.

APPLICATION IN TYPE I, II, III, IV CONSTRUCTION:

InsulStar®Light 12-008 is approved for use in all types of construction. Specific requirements for applications in Type I, II, III, and IV construction are provided in Intertek CCRR-0323.

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and fumes with a distinct odor. For interior applications, the building area must be vented with fresh air prior to reentry. The amount of air flow and time needed for venting will vary based on each situation. A closed attic area may require fans to force air into and out of the space. An open building that does not have the doors and windows installed may have sufficient air flow to vent the area fairly quickly. Refer to the NCFI Technical Bulletin "Ventilation Requirements for Reentry of Spaces After Spraying Open Cell Spray Foams" for detailed guidance.

APPLICATION AROUND PLASTIC PIPES:

The 12-008 foam can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. Refer to the NCFI Applicator Bulletin "Spraying Polyurethane Foam to CPVC and Other Types of Plastic Pipes" for the required application technique. The pipes must not be pressurized during the foam application.

APPLICATION AROUND ELECTRICAL WIRES:

The 12-008 system can be applied in contact with electrical wires. Refer to the NCFI Applicator Bulletin "Spray foam Application Around Electrical Wires" for the required application technique. Applicators must spray the foam in such a manner that the expanding foam does not stretch or distort the wires. When encapsulating light gauge wires in the foam, a foam layer should be installed behind the wires, then allow time for the foam to cool before applying the foam that covers the wires.

VAPOR RETARDER:

The 12-008 should be installed in accordance with the provisions of the 2021 IRC for walls and attics. For applications in colder climates, building codes may require a vapor retarder on the warm side of the open cell foam. Consult the local building codes for the specific requirements.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-12-008
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | | | |
|-----------------|--|-------------------------|------------------------|
| Name: | NCFI Polyurethanes | Phone: | (800) 346-8229 |
| Address: | 1515 Carter St Mount Airy, NC 27030 | Fax: | (336) 789-9586 |
| Website: | www.NCFI.com | Emergency Phone: | CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

Label Elements

| | |
|--|---|
| Hazardous components which must be listed on label: | |
| • Tertiary Amine Catalysts | • |

GHS Labeling:



WARNING

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--------------------------|
| Proprietary | < 9 | Tertiary amine catalysts |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|---|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | None |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|--|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|---------------------------------------|------|------------------|
| Tertiary Amine Catalysts ¹ | TWA | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|--------------------|--|-------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Amber | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Faint ammonia odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.13 g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | highly soluble in water |
| Boiling pt/boiling range: | >200°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | N/A |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Salt Lake City, UT

Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 07/03/2018 |
| Revision Date: | |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.

PF PROFILL HD SPRAY FOAM SYSTEM TECHNICAL DATA

DESCRIPTION: ProFill HD is a two component, one-to-one by volume, no-mix, self-adhering, seamless spray applied open cell polyurethane insulation system. ProFill HD has been formulated with water as the blowing agent and does not contain CFC, HCFC, HFC or formaldehyde. IProFill HD is suitable for use in Type I, II, III, IV & V construction.

DISTINGUISHING CHARACTERISTICS:

- Eliminates Convective Air Movement in Building Assemblies
- Good Sound Barrier
- High Yields
- Good Dimensional Stability
- Meets ASTM E84 Class A
- Air Impermeable Insulation
- Low VOC per CDPH Standard version 1.2 2017
- Fungal Resistant—ASTM C1338

| Foam Thickness | R-value (°F·hr·ft ² / Btu) |
|----------------|--|
| 1.0" | 4.5 |
| 3.5" | 15 |
| 5.5" | 25 |
| 8" | 36 |
| 11" | 48 |
| 14" | 63 |

Note: As with all insulating materials, the R-value will vary with age and use conditions.

*Based on 90 day aged testing of R-values at 1" and 3.5"

TYPICAL PHYSICAL PROPERTIES:

| | |
|--|--|
| Core Density ASTM C1622 | 0.65 ~ 0.75 pcf |
| Moisture Vapor Perm ASTM E96 Desiccant Method | 28 @ 1" |
| Air Permeance @ 75Pa ASTM E2178 | 0.02 L/s·m ² @ 6.75" |
| Max Service Temperature | 180°F |
| Flammability - ASTM E84 | @ 4 inches Flame Spread ≤ 25 Smoke Dev ≤ 450 |

Note: The above values are average values obtained from laboratory experiments and should serve only as guidelines. Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.

¹R-value tested at 90 days aging.

For proper use of this Profoam insulating material refer to the Profoam Product Stewardship Manual and the following codes or guides:

- CCRR-0323 Code Compliance Research Report
- 2021 International Building Code Chapter 26 or Residential Code Section R316 & R806
- 2018 International Building Code Chapter 26 or Residential Code Section R316 & R806
- Products, Resources, and Documents Library at polyurethane.americanchemistry.com

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

PF PROFILL HD Application Information

PREPARATION OF SURFACE TO BE SPRAYED:

To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

STORAGE AND USE OF CHEMICALS:

The ProFill HD system consists of the A2-000 component and the ProFill HD B component. Profoam recommends the chemicals not be allowed to freeze. If suspected, refer to **Profoam SPF Chemical Temperature Controls & Storage Technical Bulletin**. For proper processing through the spray foam proportioning pumps, the chemicals should be between 60°F and 85°F. Chemicals shipped during winter or summer months may need extra time to reach the proper processing temperature range. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. When stored between 40°F and 90°F, the shelf life of unopened A2-000 is 24 months and 12-075 B component is 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The ProFill HD system, consisting of the Hybrid Pro B Side drum and the A2-000 A Side drum, is formulated for spraying with a two component pump specifically designed for spray foam systems. The B component is connected to the resin pump and the A drum is connected to the isocyanate pump. The proportioning pump ratio is 1:1. Recommended proportioner settings are:

| | |
|-------------------------|-----------|
| Pre-heater Temperatures | 130-140°F |
| Hose Temperature | 130-140°F |
| Pressure Static | 1200 psi |
| Pressure Dynamic | 1000 psi |

Note: These are only recommended starting points, and may need to be adjusted according to the specific mixing chamber, proportioner, hose lengths, ambient and substrate temperatures, and conditions. Adjust the settings to achieve a good spray pattern. For additional assistance contact NCFI Polyurethanes.

CHANGING OVER FROM DIFFERENT SYSTEMS:

Closed cell and other foams are incompatible with the B side of ProFill HD. Therefore care should be taken to avoid the introduction of any other chemical system into the B side drum of ProFill HD. It is recommended to dedicate a stainless steel transfer pump to the B side of ProFill HD to avoid the possibility of cross contamination. Before applying the ProFill HD in a building assembly, spray out all of the changeover material, under pressure, onto cardboard or plastic film to flush out the hoses and pump. Under no circumstances should the user bleed out the spray lines containing incompatible foam back into the B side ProFill HD drum.

OPTIMUM SUBSTRATE TEMPERATURE:

For general work, the surface to be sprayed should be between 50°F and 120°F. Within this range, the warmer the surface, the better the adhesion. For surfaces below 50°F, the spray applicator should spray a test area approximately 25 square feet and check for proper adhesion and cell structure. If both are satisfactory, then the spray application may continue.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. The thicker the pass, the more heat will be generated. Heat will build up if the user does not wait for the foam to cool after each pass. Too much heat will degrade the foam's cell structure and the foam won't have optimum properties. The minimum pass thickness for proper chemical reaction is 3 inches. The maximum pass thickness is 10 inches. When spraying more than 6 inches in a single pass, the applicator must closely monitor the foam's adhesion and cell structure. Then wait 10 minutes or until the foam surface has cooled to ambient temperature before spraying on top of it. The number of passes to achieve the total insulation value is not limited.

ATTIC AND CRAWLSPACE APPLICATION:

Building codes require an ignition barrier material over foam plastic insulations installed in attics and crawlspaces. The Hybrid Pro system is approved for use with DC315 intumescent coating in lieu of the code-prescribed ignition barrier in attics and crawlspaces. The foam can be installed up to 5.3 inches thick on vertical surfaces and up to 9.3 inches thick on horizontal and overhead surfaces when covered with 7 wet mils of DC315.

UNVENTED ATTIC APPLICATION:

The ProFill HD system was tested per IBC Section 2603.9 and IRC Section R316.6 to qualify for application in an unvented attic with no ignition barrier covering. The attic space must be constructed in a specific manner with the attic access designed and installed in the attic floor. The 12-075 must be applied within the limitations of the approval. Refer to Intertek CCRR - 0323 or contact Profoam for specific details of the construction requirements.

APPLICATION AND SAFETY CONSIDERATIONS:

Before ProFill HD is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product application guideline. If there is a question regarding an aspect of the planned application, contact Profoam for more guidance. The Profoam Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the 12-075 system, contact NCFI.

APPLICATION GUIDELINES:

ProFill HD is suitable for application to most construction materials including wood, masonry, concrete, and metal. Hybrid Pro should not be applied to surfaces that will be in contact with soil or intermittent contact with water. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface rust, ice or frost, oil, grease, etc. Uncoated metals may require a primer coat. 24 hours before spraying the foam, no flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area where the foam will be applied. After the foam has been applied, no flammable chemical can be sprayed until the foam has cooled to ambient temperature.

CODE-COMPLIANT FIRE RESISTANCE: Building codes require the spray foam to be separated from the interior of buildings with an approved thermal barrier. Minimum ½ inch gypsum board or other approved thermal barrier, or DC315 may be installed in lieu of the thermal barrier. **There is no total thickness limitation when the foam is covered with a thermal barrier. The foam can be installed up to 5.3 inches in walls and 9.3 inches in ceilings when coated with 14 wet mils of DC315. Contact NCFI for additional information.**

APPLICATION IN TYPE I, II, III, IV CONSTRUCTION:

ProFill HD is approved for use in all types of construction. Specific requirements for applications in Type I, II, III, and IV construction are provided in Intertek CCRR-0323. Contact Profoam for additional details.

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and fumes with a distinct odor. For interior applications, the building area must be vented with fresh air to dissipate the odor. The amount of air flow and time needed for venting will vary based on each situation. A closed attic area may require fans to force air into and out of the space. An open building that does not have the doors and windows installed may have sufficient air flow to vent the odor fairly quickly. Re-entry time for closed-in areas being vented with fans is about 24 hours. Other workers should remain out of the immediate area during this venting time period.

APPLICATION AROUND PLASTIC PIPES:

Based on a series of extensive studies, the 12-075 system can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. The pipes must not be pressurized during the foam application. Where the pipe is offset from a base wall, spray just enough foam to fill the space between the wall and pipe. Avoid spraying foam where it will expand and bow or stress the pipe. Wait at least 2 minutes for cooling purposes before spraying a top layer to cover the pipe. The foam layer covering the pipe should not exceed 6 inches in thickness to avoid excessive heat at the pipe-to-foam interface. After the pipe covering layer has cooled at least 2 minutes, additional foam passes can be applied.

APPLICATION AROUND ELECTRICAL WIRES:

Based on Profoam testing, the ProFill HD system can be applied in contact with electrical wires. Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch or distort the wires. When encapsulating light gauge wires in the foam, a foam layer should be installed behind the wires. Wait at least 2 minutes for cooling before applying the covering pass of foam.

MOISTURE VAPOR RETARDER USE:

For applications in colder climates, building codes may require a vapor retarder on the warm side of the open cell foam. Consult the local building codes for information or contact Profoam for further guidance.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.

12-075 SPRAY FOAM SYSTEM TECHNICAL DATA

DESCRIPTION:

InsulStar®Light 12-075 is a two component, one-to-one by volume, no-mix, self-adhering, seamless spray applied open cell polyurethane insulation system. InsulStar®Light has been formulated with water as the blowing agent and does not contain CFC, HCFC, HFC or formaldehyde. InsulStar®Light is suitable for use in Type I, II, III, IV & V construction.

DISTINGUISHING CHARACTERISTICS:

- Eliminates Convective Air Movement in Building Assemblies
- Good Sound Barrier
- High Yields
- Good Dimensional Stability
- Meets ASTM E84 Class A
- Air Impermeable Insulation
- Low VOC per CDPH Standard version 1.2 2017
- Fungal Resistant—ASTM C1338

| Foam Thickness | R-value (°F·hr·ft ² / Btu) |
|----------------|--|
| 1.0" | 4 |
| 3.5" | 14 |
| 5.5" | 22 |
| 8" | 32 |
| 11" | 44 |
| 14" | 56 |

Note: As with all insulating materials, the R-value will vary with age and use conditions.

*Based on 90 day aged testing of R-values at 1" and 3.5"

TYPICAL PHYSICAL PROPERTIES:

| | |
|--|--|
| Core Density ASTM C1622 | 0.65 ~ 0.75 pcf |
| Moisture Vapor Perm ASTM E96 Desiccant Method | 28 @ 1" |
| Air Permeance @ 75Pa ASTM E2178 | 0.02 L/s·m ² @ 6.75" |
| Max Service Temperature | 180°F |
| Flammability - ASTM E84 | @ 4 inches Flame Spread ≤ 25 Smoke Dev ≤ 450 |

Note: The above values are average values obtained from laboratory experiments and should serve only as guidelines. Free rise core density should not be confused with overall density. Overall densities are always higher than free rise core densities and take into account skin formation, thickness of application, environmental conditions, etc.
¹R-value tested at 90 days aging.

For proper use of this NCFI insulating material refer to the NCFI Product Stewardship Manual and the following codes or guides:

- CCRR-0323 Code Compliance Research Report
- 2021 International Building Code Chapter 26 or Residential Code Section R316 & R806
- 2018 International Building Code Chapter 26 or Residential Code Section R316 & R806
- Products, Resources, and Documents Library at polyurethane.americanchemistry.com

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

12-075 Application Information

PREPARATION OF SURFACE TO BE SPRAYED:

To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface, loose scale, ice or frost. All metal surfaces must be free of oil, grease, etc. Uncoated metals may require a primer coat.

STORAGE AND USE OF CHEMICALS:

The 12-075 system consists of the A2-000 component and the 12-075 B component. NCFI recommends the chemicals not be allowed to freeze. If suspected, refer to **NCFI SPF Chemical Temperature Controls & Storage Technical Bulletin**. For proper processing through the spray foam proportioning pumps, the chemicals should be between 60°F and 85°F. Chemicals shipped during winter or summer months may need extra time to reach the proper processing temperature range. Cold chemicals can cause poor mixing, pump cavitation or other processing problems. Keep drums tightly closed when not in use and under dry air or nitrogen pressure of 2-3 psi after they have been opened. When stored between 40°F and 90°F, the shelf life of unopened A2-000 is 24 months and 12-075 B component is 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information go to www.spraypolyurethane.org and click on the Resources tab in the Professional Contractors section.

EQUIPMENT AND COMPONENT RATIOS:

The 12-075 system, consisting of the 12-075 B Side drum and the A2-000 A Side drum, is formulated for spraying with a two component pump specifically designed for spray foam systems. The B component is connected to the resin pump and the A drum is connected to the isocyanate pump. The proportioning pump ratio is 1:1. Recommended proportioner settings are:

| | |
|-------------------------|-----------|
| Pre-heater Temperatures | 130-140°F |
| Hose Temperature | 130-140°F |
| Pressure Static | 1200 psi |
| Pressure Dynamic | 1000 psi |

Note: These are only recommended starting points, and may need to be adjusted according to the specific mixing chamber, proportioner, hose lengths, ambient and substrate temperatures, and conditions. Adjust the settings to achieve a good spray pattern. For additional assistance contact NCFI Polyurethanes.

CHANGING OVER FROM DIFFERENT SYSTEMS:

Closed cell and other foams are incompatible with the B side of 12-075. Therefore care should be taken to avoid the introduction of any other chemical system into the B side drum of 12-075. It is recommended to dedicate a stainless steel transfer pump to the B side of 12-075 to avoid the possibility of cross contamination. Before applying the 12-075 in a building assembly, spray out all of the changeover material, under pressure, onto cardboard or plastic film to flush out the hoses and pump. Under no circumstances should the user bleed out the spray lines containing incompatible foam back into the B side 12-075 drum.

OPTIMUM SUBSTRATE TEMPERATURE:

For general work, the surface to be sprayed should be between 50°F and 120°F. Within this range, the warmer the surface, the better the adhesion. For surfaces below 50°F, the spray applicator should spray a test area approximately 25 square feet and check for proper adhesion and cell structure. If both are satisfactory, then the spray application may continue.

APPLICATION PASS THICKNESS:

Spraying foam will generate heat. The thicker the pass, the more heat will be generated. Heat will build up if the user does not wait for the foam to cool after each pass. Too much heat will degrade the foam's cell structure and the foam won't have optimum properties. The minimum pass thickness for proper chemical reaction is 3 inches. The maximum pass thickness is 10 inches. When spraying more than 6 inches in a single pass, the applicator must closely monitor the foam's adhesion and cell structure. Then wait 10 minutes or until the foam surface has cooled to ambient temperature before spraying on top of it. The number of passes to achieve the total insulation value is not limited.

ATTIC AND CRAWLSPACE APPLICATION:

Building codes require an ignition barrier material over foam plastic insulations installed in attics and crawlspaces. The 12-075 system is approved for use with DC315 intumescent coating in lieu of the code-prescribed ignition barrier in attics and crawlspaces. The foam can be installed up to 5.3 inches thick on vertical surfaces and up to 9.3 inches thick on horizontal and overhead surfaces when covered with 7 wet mils of DC315.

UNVENTED ATTIC APPLICATION:

The 12-075 system was tested per IBC Section 2603.9 and IRC Section R316.6 to qualify for application in an unvented attic with no ignition barrier covering. The attic space must be constructed in a specific manner with the attic access designed and installed in the attic floor. The 12-075 must be applied within the limitations of the approval. Refer to Intertek CCRR - 0323 or contact NCFI for specific details of the construction requirements.



APPLICATION AND SAFETY CONSIDERATIONS:

Before 12-075 is to be applied, there are many safety and application situations to consider. All spray foam applicators must evaluate the job prior to beginning the spray foam application. It is impossible to anticipate every issue and provide explicit guidance in this product application guideline. If there is a question regarding an aspect of the planned application, contact NCFI for more guidance. The NCFI Product Stewardship Manual contains additional information and should be reviewed often enough by all spray foam applicators to remain familiar with the contents. The American Chemistry Council (ACC), the Center for Polyurethanes Industry (CPI) and the Spray Polyurethane Foam Alliance (SPFA) also publish information regarding the safe handling and application of spray foam chemicals. If there are any questions regarding the application of the 12-075 system, contact NCFI.

APPLICATION GUIDELINES:

12-075 is suitable for application to most construction materials including wood, masonry, concrete, and metal. 12-075 should not be applied to surfaces that will be in contact with soil or intermittent contact with water. To ensure proper adhesion, all substrate surfaces should be dry, clean of dust or flaking surface rust, ice or frost, oil, grease, etc. Uncoated metals may require a primer coat. 24 hours before spraying the foam, no flammable chemicals, such as wasp and hornet sprays, should be sprayed in the area where the foam will be applied. After the foam has been applied, no flammable chemical can be sprayed until the foam has cooled to ambient temperature.

CODE-COMPLIANT FIRE RESISTANCE:

Building codes require the spray foam to be separated from the interior of buildings with an approved thermal barrier. Minimum ½ inch gypsum board or other approved thermal barrier, or DC315 may be installed in lieu of the thermal barrier. **There is no total thickness limitation when the foam is covered with a thermal barrier. The foam can be installed up to 5.3 inches in walls and 9.3 inches in ceilings when coated with 14 wet mils of DC315. Contact NCFI for additional information.**

APPLICATION IN TYPE I, II, III, IV CONSTRUCTION:

InsulStar® Light 12-075 is approved for use in all types of construction. Specific requirements for applications in Type I, II, III, and IV construction are provided in Intertek CCRR-0323. Contact NCFI for additional details.

VENTILATION OF SPRAY AREA:

Spraying foam will generate a mist and fumes with a distinct odor. For interior applications, the building area must be vented with fresh air to dissipate the odor. The amount of air flow and time needed for venting will vary based on each situation. A closed attic area may require fans to force air into and out of the space. An open building that does not have the doors and windows installed may have sufficient air flow to vent the odor fairly quickly. Re-entry time for closed-in areas being vented with fans is about 24 hours. Other workers should remain out of the immediate area during this venting time period.

APPLICATION AROUND PLASTIC PIPES:

Based on a series of extensive studies, the 12-075 system can be applied in contact with PVC, CPVC, ABS, PP-R and PEX plastic pipes. The pipes must not be pressurized during the foam application. Where the pipe is offset from a base wall, spray just enough foam to fill the space between the wall and pipe. Avoid spraying foam where it will expand and bow or stress the pipe. Wait at least 2 minutes for cooling purposes before spraying a top layer to cover the pipe. The foam layer covering the pipe should not exceed 6 inches in thickness to avoid excessive heat at the pipe-to-foam interface. After the pipe covering layer has cooled at least 2 minutes, additional foam passes can be applied.

APPLICATION AROUND ELECTRICAL WIRES:

Based on NCFI testing, the 12-075 system can be applied in contact with electrical wires. Spray foam applicators must spray the foam in such a manner that the expanding foam does not stretch or distort the wires. When encapsulating light gauge wires in the foam, a foam layer should be installed behind the wires. Wait at least 2 minutes for cooling before applying the covering pass of foam.

MOISTURE VAPOR RETARDER USE:

For applications in colder climates, building codes may require a vapor retarder on the warm side of the open cell foam. Consult the local building codes for information or contact NCFI Polyurethanes for further guidance.

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI warrants only that the material shall meet its specifications; this warranty is in lieu of all other written or unwritten, expressed or implied warranties and NCFI expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI of all liability with respect to the material or the use thereof.

TECHNICAL DATA SHEET

NCFI SPRAY FOAM SYSTEM 10-011

DESCRIPTION:

NCFI 10-011 is a two component, HFC-245fa blown, all PMDI based spray polyurethane foam system designed for use as a self-adhering, seamless, high insulating, spray applied rigid polyurethane foam roofing system. 10-011 is available in multiple speeds for use in varying temperature conditions. 10-011 complies with ASTM D7425 and has been formulated to spray at a 2.8 pound density, depending on lift thickness, and may be used in applications of the EnduraTech™ roofing systems.

DISTINGUISHING CHARACTERISTICS:

- Excellent Cure and Overlap Adhesion
- High Yields
- High Closed Cell Content
- Good Dimensional Stability

APPROVALS:

ICC-Evaluation Services - ESR-3392.



This system is classified per UL Standards.



This system is Approved by Factory Mutual.



This system is Approved per Miami Dade and Florida Product Approval.



For specific roof assembly approvals refer to the NCFI Application Information or contact NCFI for additional details. The building code and listed guides provide additional information:

- International Building Code (IBC) Section 2603
- *CPI Fire Safety Guidelines for Use of Rigid Polyurethanes and Polyisocyanurate Foam Insulation in Building Construction*
- CPI Bulletin AX 151: *Guidelines for the Responsible disposal of Waste and Containers from Polyurethane Processing*
- CPI Bulletin AX 205: *Guidance for Working with MDI and Polymeric MDI: Things You Should Know*

TYPICAL PHYSICAL PROPERTIES:

| | | |
|--|------------|------------------------|
| Core Density | ASTM D1622 | 2.8 pcf |
| Compressive Strength | ASTM D1621 | 54 psi |
| Tensile Strength | ASTM D1623 | 60 lbf/ft ² |
| Moisture Vapor Perm | ASTM E96 | 0.91 perm·in |
| Closed Cell Content | ASTM D2856 | >93% |
| Maximum Service Temperature | | 180°F |
| Flame Spread @ 2" | ASTM E84 | <75 |
| Note: The above values are average values obtained from a laboratory and should serve only as a guide. | | |

R-Values* ASTM C518

| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm |
|---|---------------------------------------|---------------------|
| 1 | 6.3 | 0.92 |
| 1 ½ | 9.5 | 0.61 |
| 2 | 13 | 0.46 |
| 4 | 27 | 0.23 |
| *Note: As with all insulating materials, the R-value will vary with age and use conditions. | | |

ADDITIONAL PRODUCT INFORMATION:

NCFI provides a Product Stewardship Manual with additional information regarding the shipping, handling and application of spray polyurethane foam systems. SPF applicators should ensure they are familiar with the information in the latest issue of the NCFI Product Stewardship Manual.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

NCFI 10-011 APPLICATION INFORMATION

EQUIPMENT AND COMPONENT RATIOS:

The 10-011 system, consisting of the A2-000 and B10-011 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B drum is connected to the resin pump and the A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1:1. The dispensing temperature should be set at 130°F for automatically controlled machinery to give a good spray pattern. For additional assistance contact NCFI.

PROPER TEMPERATURE AND OPTIMUM FOAM REACTIVITY:

Below are the recommended air temperatures with the proper version of 10-011 for roof work.

| | | |
|---------------------|-------------------------|-------------------------|
| <u>50°F to 60°F</u> | <u>60°F & above</u> | <u>75°F & above</u> |
| Fast | Regular | Slow |

Care in selecting the proper reactivity version of 10-011 is needed for the combination of adequate curing on the overlap edges and reasonable texture of the foam surface. For temperatures below 40°F contact NCFI for specific recommendations.

STORAGE AND USE OF CHEMICALS:

Keep the temperature of the chemicals above 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The storage temperature should not exceed 85°F. Do not store in direct sunlight. Keep drums tightly closed when not in use. The B side drum must be kept under dry air or nitrogen pressure of 2-3 psi after opening and during use. The shelf life of unopened A2-000 is 24 months and the B10-011 is 6 months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to www.spraypolyurethanes.org Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF.

FOR ANY QUESTIONS REGARDING THE ABOVE RECOMMENDATIONS CONTACT NCFI

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI Polyurethanes warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI Polyurethanes expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI Polyurethanes of all liability with respect to the material or the use thereof.

PREPARATION OF SURFACE TO BE SPRAYED:

All surfaces to be sprayed should be clean, dry, and free of dew or frost. All metal to which foam is to be applied must be free of oil, grease, etc. Primers should be used where necessary. Please refer to NCFI's "Special Bulletin on Recommended Procedures for Applying NCFI Spray Foam Systems on Exterior Roof Surfaces."

PROPER TEMPERATURE FOR OPTIMUM ADHESION:

When the surface temperature will have a service temperature between 120°F and 180°F (#6 oil and resin tanks), the surface to be sprayed should be 120°F or above at the time of spraying. For temperatures over 180°F, please contact NCFI for specific recommendations.

WEATHER PROTECTION OF FINISHED FOAM:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight, which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available.

VAPOR BARRIER PROTECTION ON COLD STORAGE WORK:

When sprayed polyurethane foam is used on exterior roofs of freezer or cooler buildings, the exterior coating on the foam should be a vapor barrier. This is because of severe vapor drive from the hot roof to the cold interior.

APPLICATION GUIDELINE:

10-011 is designed for application on the exterior of a roof. It is not designed for interior applications. NCFI has other systems designed for interior use.

NCFI SPRAY FOAM SYSTEM 10-011 3.0

DESCRIPTION:

NCFI 10-011 3.0 is a two component, HFC-245fa blown, all PMDI based spray polyurethane foam system designed for use as a self-adhering, seamless, high insulating, spray applied rigid polyurethane foam roofing system. NCFI 10-011 3.0 will be available in multiple speeds for use in varying temperature conditions. NCFI 10-011 3.0 complies with ASTM D7425 and has been formulated to spray at a 3 pound density, depending on lift thickness, and may be used in applications of the EnduraTech™ roofing systems.

DISTINGUISHING CHARACTERISTICS:

- Excellent Cure and Overlap Adhesion
- High Yields
- High Closed Cell Content
- Good Dimensional Stability

| TYPICAL PHYSICAL PROPERTIES: | | |
|--|---------------------------------------|------------------------|
| Core Density | ASTM D1622 | 3.0 pcf |
| Compressive Strength | ASTM D1621 | 62 psi |
| Tensile Strength | ASTM D1623 | 60 lbf/ft ² |
| Closed Cell Content | ASTM D2856 | >93% |
| Maximum Service Temperature | | 180°F |
| Flame Spread @ 2" | ASTM E84 | <75 |
| Note: The above values are average values obtained from a laboratory and should serve only as a guide. | | |
| R-Values* ASTM C518 | | |
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | Moisture Vapor Perm |
| 1 | 6.3 | 0.92 |
| 1 ½ | 9.5 | 0.61 |
| 2 | 13 | 0.46 |
| 4 | 27 | 0.23 |
| *Note: As with all insulating materials, the R-value will vary with age and use conditions. | | |

APPROVALS:

ICC-Evaluation Services - ESR-3392

This system is classified per UL Standards.

This system is Approved by Factory Mutual.

This system is Approved per Miami Dade and Florida Product Approval.



For specific roof assembly approvals refer to the NCFI Application Information or contact NCFI for additional details. The building code and listed guides provide additional information:

- International Building Code (IBC) Section 2603
- CPI *Fire Safety Guidelines for Use of Rigid Polyurethanes and Polyisocyanurate Foam Insulation in Building Construction*
- CPI Bulletin AX 151: *Guidelines for the Re-sponsible disposal of Waste and Containers from Polyurethane Processing*
- CPI Bulletin AX 205: *Guidance for Working with MDI and Polymeric MDI: Things You Should Know*

ADDITIONAL PRODUCT INFORMATION:

NCFI provides a Product Stewardship Manual with additional information regarding the shipping, handling and application of spray polyurethane foam systems. SPF applicators should ensure they are familiar with the information in the latest issue of the NCFI Product Stewardship Manual.

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

NCFI 10-011 3.0 APPLICATION INFORMATION

EQUIPMENT AND COMPONENT RATIOS:

The 10-011 system is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The 10-011R drum is connected to the resin pump and the 10-011A drum is connected to the isocyanate pumps. The proportioning pump ratio is 1:1. The dispensing temperature should be set at 130°F for automatically controlled machinery to give a good pattern. For additional assistance contact NCFI.

PROPER TEMPERATURE AND OPTIMUM FOAM REACTIVITY:

Below are the recommended air temperatures with the proper version of 10-011 for roof work.

| | | |
|---------------------|-------------------------|-------------------------|
| <u>50°F to 60°F</u> | <u>60°F & above</u> | <u>75°F & above</u> |
| Fast | Regular | Slow |

Care in selecting the proper reactivity version of 10-011 is needed for the combination of adequate curing on the overlap edges and reasonable texture of the foam surface. For temperatures below 50°F contact NCFI for specific recommendations.

STORAGE AND USE OF CHEMICALS:

Keep the temperature of the chemicals above 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The storage temperature should not exceed 85°F. Do not store in direct sunlight. Keep drums tightly closed when not in use. The R side drum must be kept under dry air or nitrogen pressure of 2-3 psi after opening and during use. The shelf life of NCFI 10-011 is six months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Loosen the small bung first and let any built up gas escape before completely removing. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to www.spraypolyurethanes.org Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF.

PREPARATION OF SURFACE TO BE SPRAYED:

All surfaces to be sprayed should be clean, dry, and free of dew or frost. All metal to which foam is to be applied must be free of oil, grease, etc. Primers should be used where necessary. Please refer to NCFI's "Special Bulletin on Recommended Procedures for Applying NCFI Spray Foam Systems on Exterior Roof Surfaces."

PROPER TEMPERATURE FOR OPTIMUM ADHESION:

When the surface temperature will have a service temperature between 120°F and 180°F (#6 oil and resin tanks), the surface to be sprayed should be 120°F or above at the time of spraying. For temperatures over 180°F please contact NCFI for specific recommendations.

WEATHER PROTECTION OF FINISHED FOAM:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight, which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available.

VAPOR BARRIER PROTECTION ON COLD STORAGE WORK:

When sprayed polyurethane foam is used on exterior roofs of freezer or cooler buildings, the exterior coating on the foam should be a vapor barrier. This is because of severe vapor drive from the hot roof to the cold interior.

PREDICTION OF FIRE HAZARD IN CONSTRUCTION:

NCFI 10-011 is designed for use as an exterior roof membrane. NCFI 10-011 is not designed for interior use. NCFI has many other systems designed for interior use; however, where any foam is sprayed in building interiors its exposed surface should be protected from fire hazard by ½" Portland cement plaster or ½" gypsum board or equivalent per applicable building code.

FOR ANY QUESTIONS REGARDING THE ABOVE RECOMMENDATIONS CONTACT NCFI

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI Polyurethanes warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI Polyurethanes expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI Polyurethanes of all liability with respect to the material or the use thereof.



SAFETY DATA SHEET According to GHS

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800.346.8229 • Fax 336.789.9586 • www.NCFI.com

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-10-011
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--|
| 460-73-1 | <9 | 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) |
| Proprietary | <4 | Tertiary amine catalysts |
| 156-60-5 | <3 | Trans-1,2-Dichloroethylene |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by CF ₃ CH ₂ CHF ₂ . CF ₃ CH ₂ CHF ₂ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|--------------------|
| 1,1,1,3,3-Pentafluoropropane (CF ₃ CH ₂ CHF ₂ or HFC-245fa) | TWA | 300ppm recommended |
| Tertiary Amine Catalysts ¹ | TWA | None established |
| Trans-1,2-Dichloroethylene | TWA | 200ppm |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Amber | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.2g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 60°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|---|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids, and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 06/26/2014 |
| Revision Date: | 10/27/2017 |

IMPORTANT NOTICES

This notification is a part of the Safety Data Sheet document and must not be detached. Any copying and redistribution of the Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Material Safety Data Sheet copies.

This information is furnished without warranty, expressed, or implied, except that it is accurate to the best knowledge of NCFI. The data on this sheet relates only to the specific material designated herein. NCFI assumes no legal responsibility for use or reliance upon these data.



NCFI SPRAY FOAM SYSTEM 10-016 2.8 Ib. TECHNICAL DATA SHEET

DESCRIPTION:

NCFI 10-016 is a two component, HFO blown spray polyurethane foam system designed for use as a self-adhering, seamless, high insulating, spray applied rigid polyurethane foam roofing system. 10-016 is available in multiple speeds for use in varying temperature conditions. 10-016 complies with ASTM D7425 and has been formulated to spray at a 2.8 pound density, depending on lift thickness, and may be used in applications of the EnduraTech® roofing systems.

DISTINGUISHING CHARACTERISTICS:

- Excellent Cure and Overlap Adhesion
- High Yields
- High Closed Cell Content
- Good Dimensional Stability
- Class II Vapor Retarder @ 1"

APPROVALS:

This system is classified per UL Standards.



For specific roof assembly approvals refer to the NCFI Application Information or contact NCFI for additional details. The building code and listed guides provide additional information:

- International Building Code (IBC) Section 2603
- International Building Code (IBC) Section 1507.13
- CPI Fire Safety Guidelines for Use of Rigid Polyurethanes and Polyisocyanurate Foam Insulation in Building Construction
- CPI Bulletin AX 151: Guidelines for the Responsible disposal of Waste and Containers from Polyurethane Processing
- CPI Bulletin AX 205: Guidance for Working with MDI and Polymeric MDI: Things You Should Know

ADDITIONAL PRODUCT INFORMATION:

NCFI provides a Product Stewardship Manual with additional information regarding the shipping, handling and application of spray polyurethane foam systems. SPF applicators should ensure they are familiar with the information in the latest issue of the NCFI Product Stewardship Manual.

TYPICAL PHYSICAL PROPERTIES*:

| | | |
|---|---------------------|---------|
| Core Density | ASTM D1622 | 2.8 pcf |
| Compressive Strength | ASTM D1621 | 58 psi |
| Tensile Strength | ASTM D1623 | 77 psi |
| Closed Cell Content | ASTM D2856 | >90% |
| Maximum Service Temperature | | 180°F |
| Flame Spread @ 4" | ASTM E84 | <75 |
| Sheer Strength | ASTM C273 | 43 psi |
| R- Value @ 1" | ASTM C518 @180 days | 6.7 |
| *Note: The above values are average values obtained from a laboratory and should serve only as a guide. | | |

| R-Values* | | ASTM C518 | ASTM E96 |
|---|---------------------------------------|-----------|-------------------|
| Thickness (inches) | R-Value (°F·hr·ft ² / Btu) | | Vapor Perm (perm) |
| 1 | 6.7 | | 0.87 |
| 1 ½ | 10 | | 0.58 |
| 2 | 13 | | 0.44 |
| 4 | 27 | | 0.22 |
| 6 | 40 | | 0.15 |
| 8 | 54 | | 0.11 |
| 10 | 67 | | 0.09 |
| 12 | 80 | | 0.07 |
| *Note: As with all insulating materials, the R-value will vary with age and use conditions. | | | |

Polyurethane products manufactured or produced from this liquid system may present a serious fire hazard if improperly used or allowed to remain exposed or unprotected. The character and magnitude of any such hazard will depend on a broad range of factors, which are controlled and influenced by the manufacturing and production process, by the mode of application or installation and by the function and usage of the particular product. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions. These ratings are used solely to measure and describe the product's response to heat and flame under controlled laboratory conditions.** Each person, firm or corporation engaged in the manufacture, production, application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures.

NCFI 10-016 APPLICATION INFORMATION

APPLICATION GUIDELINE:

10-016 is designed for application on the exterior of a roof. It is not designed for interior applications. NCFI has other systems designed for interior use.

STORAGE AND USE OF CHEMICALS:

Keep the temperature of the chemicals above 70°F for several days before use. Cold chemicals can cause poor mixing, pump cavitation or other process problems due to higher viscosity at lower temperatures. The storage temperature should not exceed 85°F. Do not store in direct sunlight. Keep drums tightly closed when not in use. The B-side drum must be kept under dry air or nitrogen pressure of 2-3 psi after opening and during use. The shelf life of unopened A2-000 is 24 months and the B-10-016 is six months.

SAFE HANDLING OF LIQUID COMPONENTS:

Use caution in removing bungs from the container. Partially loosen the small bung first allowing any built up gas pressure to escape before completely removing it. Avoid prolonged breathing of vapors. In case of chemical contact with eyes, flush with water for at least 15 minutes and get medical attention. For further information refer to www.spraypolyurethanes.org Health and Safety Product Stewardship Workbook for High-Pressure Application of SPF.

EQUIPMENT AND COMPONENT RATIOS:

The 10-016 system, consisting of the A2-000 and B-10-016 components, is formulated for spraying with a two component pump specifically designed for spray polyurethane foam systems. The B-drum is connected to the resin pump and the A-drum is connected to the isocyanate pumps. The proportioning pump ratio is 1:1. The dispensing temperature should be set at 130°F and adjusted accordingly to give a good spray pattern. For additional assistance contact NCFI.

PROPER TEMPERATURE AND OPTIMUM FOAM REACTIVITY:

Below are the recommended ambient air temperatures for the different speeds of 10-016.

| 10-016 Systems | Temperature Range Guideline |
|----------------|-----------------------------|
| SW SLOW | 100°F & above |
| SLOW | 75°F & above |
| REG | 60°-80°F |
| FAST | 40°-60°F |

Care in selecting the proper speed of 10-016 is needed for the combination of adequate curing on the overlap edges and an acceptable texture of the foam surface. For temperatures below 40°F contact NCFI for specific recommendations.

PREPARATION OF SURFACE TO BE SPRAYED:

All surfaces to be sprayed should be clean, dry, and free of dew or frost. All metal to which foam is to be applied must be free of oil, grease, etc. Primers should be used where necessary. Please refer to NCFI's "Special Bulletin on Recommended Procedures for Applying NCFI Spray Foam Systems on Exterior Roof Surfaces."

PROPER TEMPERATURE FOR OPTIMUM ADHESION:

When the surface temperature will have a service temperature between 120°F and 180°F (#6 oil and resin tanks), the surface to be sprayed should be 120°F or above at the time of spraying. For temperatures over 180°F, please contact NCFI for specific recommendations.

VAPOR BARRIER PROTECTION ON COLD STORAGE WORK:

When sprayed polyurethane foam is used on exterior roofs of freezer or cooler buildings, the exterior coating on the foam should be a vapor barrier. This is because of severe vapor drive from the warm exterior to the cold interior.

WEATHER PROTECTION OF FINISHED FOAM:

The finished surface of sprayed polyurethane foam should be protected from adverse effects of ultraviolet rays of direct sunlight, which can cause dusting and discoloration. Protective coatings designed for use with polyurethane foam are available.

FOR ANY QUESTIONS REGARDING THE ABOVE RECOMMENDATIONS CONTACT NCFI

The information on our data sheets is to assist customers in determining whether our products are suitable for their applications. The customers must satisfy themselves as to the suitability for specific cases. NCFI Polyurethanes warrants only that the material shall meet its specifications. This warranty is in lieu of all other written or unwritten, expressed or implied warranties, and NCFI Polyurethanes expressly disclaims any warranty of merchantability, fitness for a particular purpose, or freedom from patent infringement. Accordingly, buyer assumes all risks whatsoever as to the use of the material. Buyer's exclusive remedy as to any breach of warranty, negligence or other claim shall be limited to the purchase price of the material. Failure to adhere strictly to any recommended procedures shall relieve NCFI Polyurethanes of all liability with respect to the material or the use thereof.

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 1: Identification

Product Identifier

Trade Name: B-10-016
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|---|
| Proprietary | <3 | Tertiary amine catalysts |
| 102687-65-0 | 5-15% | Trans-1-Chloro-3,3,3-trifluoropropene (CF ₃ HC=CHCl or HFO-1233zd) |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Induce vomiting; get medical attention. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|--|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | Overheated containers may rupture due to pressure produced by CF ₃ CHCHCF ₃ . CF ₃ CHCHCF ₃ burns to form acids and noxious gases. |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 7: Handling and Storage

| | |
|--|---|
| Precautions for safe handling: | Store at 60°F out of sunlight. Relieve pressure slowly when opening container. Under no circumstances should empty drums be burned or cut open with an electric or gas torch. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|--|------|---------------------|
| Tertiary Amine Catalysts ¹ | TWA | None established |
| Trans-1-Chloro-3,3,3-trifluoropropene ¹ (CF ₃ HC=CHCl or HFO-1233zd) | TWA | 300 ppm recommended |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|-------------------|--|---------------------------|
| Appearance: | Liquid | Flammability: | No |
| Color: | Amber | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Ethereal odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.15 g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | Slightly soluble in water |
| Boiling pt/boiling range: | 90°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |

Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

Section 10: Stability and Reactivity

| | |
|--|--|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | Temperatures over 85°F |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | B component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 07/29/2020 |
| Revision Date: | |

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TERRATHANE™ Product Line

The TerraThane™ product line is comprised of uniquely formulated, dual-component systems formulated for a variety of geotechnical applications, such as lifting, soil compaction, void filling, and I/I mitigation. Each batch goes through stringent testing and quality assurance standards to ensure reliability in the field.

TERRATHANE™ 24-010

TerraThane™ 24-010 is a 2.8lb water blown, MDI-based geotechnical polyurethane formulated for quick expansion and pinpoint control for lifting and leveling. 24-010 is available with an NSF/ ANSI 61 Section 5 – 2017 certification.

APPLICATIONS

- Foundation Repair
- Sidewalks
- Driveways
- Pool Decks
- Patios
- Trip Hazard Mitigation
- Floor Leveling



**CERTIFIED TO
NSF/ANSI 61**

*Upon request

UNIQUE ADVANTAGES

- Fast Reactivity
- High Control for Pinpoint Lifting
- Certified to NSF/ANSI-61
- Strengthens Loose Soil
- Water Blown System

Reactivity at 110°F

| | |
|-----------------------|-----------------|
| Cream Time | 1 – 2 seconds |
| Gel Time | 6 – 8 seconds |
| Tack Free Time | 11 – 14 seconds |
| Rise Time | 16 – 19 seconds |

Chemical Resistance

- Solvents... **Excellent**
- Mold and Mildew... **Excellent**

Performance

- Wet Environments... **Poor**
- Lifting Capacity... **Excellent**

Physical Properties

| Physical Properties | Test Method | Free Rise | Restrained |
|----------------------|-------------|---------------------------|---------------------------|
| Density | ASTM D1622 | 2.8 pcf | 3.5 – 4 pcf |
| Compressive Strength | ASTM D1621 | 27 psi | 55 – 65 psi |
| Compressive Modulus | ASTM D1621 | 695 psi | 1700 psi |
| Tensile Strength | ASTM D1623 | 66 psi | 100 – 120 psi |
| Tensile Modulus | ASTM D1623 | 100 psi | |
| Water Absorption | ASTM D2842 | ≤0.04 lbs/ft ² | ≤0.04 lbs/ft ² |
| Closed Cell Content | | >90% | >90% |
| Max Service Temp | | 180°F | 180°F |
| Elongation | ASTM D1623 | 7% | |
| Shear Strength | ASTM C273 | 38 psi | |
| Shear Modulus | ASTM C273 | 490 psi | |
| Flexural Strength | ASTM D790 | 56 psi | |
| Flexural Modulus | ASTM D790 | 1279 psi | |

Component Properties

| Component | B-24-010 | A2-000 |
|-----------------------------|--------------------|--------------------|
| Appearance | Transparent Liquid | Clear Brown Liquid |
| Brookfield Viscosity @20rpm | 600 cps at 72°F | 200 cps at 72°F |
| Specific Gravity | 1.08 | 1.24 |
| Weight per Gallon | 9.01 lbs | 10.3 lbs |
| Storage Temperature | 50-100°F | 50-100°F |

Mix Ratio

By weight... 115 parts A-side: 100 parts B-side

By volume... 100 parts A-side: 100 parts B-side

Processing Parameters

| | |
|---------------------|------------------------------------|
| A-side Temperatures | 100 – 120°F |
| B-side Temperatures | 100 – 120°F |
| Mixing Pressure | 1000 psi static 800 psi dynamic |

Storage and Handling

For optimum shelf life, the recommended storage temperature is 50°F to 100°F. **Do not expose A-side to lower temperatures – freezing may occur.** Avoid moisture contamination during storage, handling, and processing. After opening, pad the containers and day tanks with either nitrogen or dry air (desiccant cartridge or air dryer @ -40°F dew point).

Store components at 70°F to 90°F for several days prior to use to minimize viscosity issues.

Shelf life of B-side is 6 months and A-side is 2 years for factory sealed containers.

Application Cautions

Careful consideration should be given to selection and application of any NCFI Polyurethane foam system where excessive foam mass build-up can occur. Excessive polyurethane foam lift thickness will result in high internal temperatures within the injected foam, which can result in degraded foam properties, or in extreme cases, fire or spontaneous combustion. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions.** Each person, firm or corporation engaged in the application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage and utilize all appropriate precautionary and safety measures. Please consult NCFI Polyurethanes for safety considerations, polyurethane system selection and application recommendations.

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Section 1: Identification

Product Identifier

Trade Name: B-24-010
Chemical Name: Polyurethane Resin
Recommended Use: Component for the manufacture of Polyurethanes
Restrictions on Use:

Chemical Manufacturer Information

| | |
|--|--|
| Name: NCFI Polyurethanes | Phone: (800) 346-8229 |
| Address: 1515 Carter St Mount Airy, NC 27030 | Fax: (336) 789-9586 |
| Website: www.NCFI.com | Emergency Phone: CHEMTREC: 800-424-9300 |

Section 2: Hazard Identification

Classification of the substance or mixture:

| | |
|-------------------------------|------------------------------|
| GHS Classification: | |
| • Skin irritation, Category 3 | • Eye irritation, Category 2 |

GHS Labeling:



Warning

| | |
|------------------------------------|----------------------------|
| Hazard Statements: | |
| • May cause skin irritation | • May cause eye irritation |
| • May cause respiratory irritation | • |

| | |
|--|---|
| Precautionary Statements: | |
| • Do not breathe fume/gas/mist/vapors/spray | • Wear protective gloves/eye protection/face protection |
| • IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | • IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing |
| • IF ON SKIN: Wash with plenty of soap and water | |

Other Hazards:



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Section 3: Composition

Hazardous Components

Type of product: Mixture

| CAS# | Weight % | Name |
|-------------|----------|--------------------------|
| Proprietary | <4 | Tertiary amine catalysts |

Section 4: First Aid Measures

| | |
|--|--|
| Inhalation: | Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician. |
| Eye Contact: | Flush with water for at least 15 minutes. See a physician if irritation develops. |
| Ingestion: | Do not induce vomiting unless told to do so by a medical professional. |
| Most Important symptoms and effects, acute and delayed: | May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization. |
| Indication of immediate medical attention and special treatment, if applicable: | N/A |
| Skin Contact: | Wash with soap and water at first opportunity. |

Section 5: Fire-Fighting Measures

| | |
|---|---|
| Suitable extinguishing media: | Water, dry chemicals, CO ₂ |
| Unsuitable extinguishing media: | None |
| Special hazards arising from the chemical: | None |
| Precautions for fire-fighters: | A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors. |

Section 6: Accidental Release Measures

| | |
|--|---|
| Personal precautions, protective equipment, and emergency procedures: | Clear area. Ensure adequate ventilation. Wear suitable personal protective clothing and equipment. |
| Environmental precautions: | Do not discharge into drains/surface waters/groundwater |
| Methods and material for containment and cleanup: | Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations. |



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Section 7: Handling and Storage

| | |
|--|--|
| Precautions for safe handling: | Store between 65°F and 85°F out of sunlight. Relieve pressure slowly when opening container. |
| Conditions for safe storage, including any incompatibilities: | Keep tightly sealed. |

Section 8: Exposure Controls and PPE

Exposure Limits

| Component: | Type | Value |
|---------------------------------------|------|------------------|
| Tertiary Amine Catalysts ¹ | TWA | None established |

¹Not listed as a carcinogen (NTA, IARC, OSHA)

Exposure Controls

| | |
|--|---|
| Respiratory Protection: | The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self-contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, <i>see OSHA standard 29CFR 1910.134</i> . All equipment must be NIOSH approved and maintained. |
| Hand, eye, skin, body protection: | Wear goggles or chemical safety glasses and chemically resistant rubber or plastic gloves. Avoid eye and skin contact. Eye wash system and showers should be available. |

Section 9: Physical and Chemical Properties

Basic chemical and physical properties

| | | | |
|----------------------------------|--------------------|--|-------------------------|
| Appearance: | Liquid | Flammability: | N/A |
| Color: | Amber | Upper/lower flammability or explosive limits: | N/A |
| Odor: | Faint ammonia odor | Vapor pressure: | N/A |
| Odor threshold: | N/A | Vapor density: | N/A |
| pH: | N/A | Relative density: | 1.07g/mL |
| Melting pt/freezing pt: | <32°F | Solubility(ies): | highly soluble in water |
| Boiling pt/boiling range: | >200°F | Partition coefficient (n-octanol/water): | N/A |
| Flash point: | >200°F | Auto-ignition temperature: | >500°F |
| Evaporation rate: | Slower than ether | Decomposition temperature: | >500°F |



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Section 10: Stability and Reactivity

| | |
|--|--|
| Chemical stability: | Stable |
| Possibility of hazardous reactions: | N/A |
| Conditions to avoid: | N/A |
| Incompatible materials: | Isocyanates and other chemicals that react with hydroxyl groups. |
| Hazardous decomposition products: | When burned, CO, CO ₂ , NO _x aliphatic fragments, halogens, halogen acids and possibly carbonyl halides. |

Section 11: Toxicological Information

| | |
|---|--|
| Acute toxicity: | May cause skin irritation |
| Chronic toxicity: | Not available |
| Likely routes of exposure: | Skin |
| Symptoms related to physical, chemical and toxicological characteristics: | May cause skin irritation |
| Delayed and immediate effects and chronic effects from short and long-term exposure: | May cause skin irritation; avoid contact with eyes |
| Numerical toxicity measures: | Not available |

Section 12: Ecological Information

| | |
|---------------------------------------|------------------------------|
| Ecotoxicity: | Not a marine pollutant |
| Persistence and degradability: | No known significant effects |
| Bioaccumulative potential: | Does not bioaccumulate |
| Mobility in soil: | |

Section 13: Disposal

| | |
|------------------------|---|
| Waste disposal: | R component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations |
|------------------------|---|

Section 14: Transport

| | |
|--------------------------------------|---------------|
| UN number: | Not regulated |
| UN Proper shipping name: | Not regulated |
| Transport Hazard class(es): | Not regulated |
| Packing group, if applicable: | Not regulated |
| Marine pollutant (YorN): | N |
| Special precautions: | None |



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Section 15: Regulatory

Relevant safety, health, and environmental regulations

| | |
|--|----------------------------|
| Inventory Status: | All components TSCA listed |
| US Regulations: | No ingredients listed |
| US Superfund Amendments and Reauthorization Act (SARA) Title III Section 313 information: | No ingredients listed |

Section 16: Other

| | |
|------------------------------|------------|
| SDS Preparation Date: | 06/24/2014 |
| Revision Date: | 01/09/2017 |
| Revision 2 Date: | 10/30/2017 |

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THERMAL INSULATION AND AIR BARRIER
ESR-699 CCRR-0371 | CSI Section: 07 21 00

PRODUCT DESCRIPTION

Accufoam OC is a two-component, one-by-one-by-volume spray-applied polyurethane foam. Accufoam OC is a high-yield, low-density, no-mix, spray-applied insulation foam, which contains zero ozone-depleting blowing agents and is designed to provide good thermal performance and a significant control of air infiltration of an air-barrier assembly. Accufoam OC is 100% water blown.



PRODUCT DATA

| PROPERTY | TEST METHOD | VALUE |
|---------------------------------|----------------|---------|
| R-VALUE @ 1" | ASTM C 518 | 3.7 |
| R-VALUE @ 3.5" | ASTM C 518 | 13 |
| CORE DENSITY pcf | ASTM D 1622 | 0.45 |
| OPEN-CELL CONTENT % | ASTM D 6226 | >90 |
| DIMENSIONAL STABILITY % | ASTM D 2126 | <9.3 |
| TENSILE STRENGTH psi | ASTM D 1623 | 4.2 |
| AIR PERMEANCE | ASTM E 2178 | <0.02 |
| SOUND TRANSMISSION CLASS | ASTM E 90 | 38 |
| NOISE REDUCTION COEFFICIENT | ASTM C 423 | 0.55 |
| SURFACE BURNING CHARACTERISTICS | ASTM E 84 | Class-1 |
| RE-ENTRY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| RE-OCCUPANCY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| VISCOSITY-ISO AT 77F (CPS) | | 200 |
| VISCOSITY-RESIN AT 77F (CPS) | | 320 |

BURN CHARACTERISTICS

| PROPERTY | TEST METHOD | VALUE |
|--------------------|-------------|-------|
| FLAME SPREAD INDEX | ASTM E 84 | ≤ 25 |
| SMOKE DEVELOPMENT | ASTM E 84 | ≤ 450 |

IGNITION BARRIER AC377X

| TYPE | WFT | WALL | CEILING |
|----------------------------|-----------|-------------|-------------|
| DC315 | 4 MIL MIN | 8 INCH MAX | 14 INCH MAX |
| FS-IB | 6 MIL MIN | 10 INCH MAX | 15 INCH MAX |
| No Burn Plus XD / Plus ThB | 6 MIL MIN | 8 INCH MAX | 14 INCH MAX |

THERMAL BARRIER NFPA286

| TYPE | WFT | WALL | CEILING |
|-------|------------|-------------|-------------|
| DC315 | 18 MIL MIN | 10 INCH MAX | 12 INCH MAX |

UNVENTED ATTIC ASSEMBLIES CCRR 0354

| LOCATION | MAX THICKNESS (IN.) | MIN THICKNESS (IN.) |
|------------|---------------------|---------------------|
| ROOF DECK | 18" | 3" |
| ATTIC WALL | 18" | 3" |

*Consult with Creative Polymer Solutions Technical Department for Unvented Attic Guide drawings and specifications.

APPLICATION PARAMETERS

| | |
|-------------------------------|------------------|
| STORAGE TEMPERATURE | 60° – 90° |
| AMBIENT TEMPERATURE | 40° – 120° |
| SUBSTRATE TEMPERATURE | 40° – 120° |
| MOISTURE CONTENT OF SUBSTRATE | Less than 19% |
| MAXIMUM LIFT PER PASS | Not to exceed 8" |

EQUIPMENT SETTINGS

| | |
|-----------------------------------|--|
| PRE-HEATER: (A) COMPONENT – ISO | 120° – 140° |
| PRE-HEATER: (B) COMPONENT – RESIN | 120° – 140° |
| HOSE HEAT | 120° – 140° |
| FLUID PRESSURE – DYNAMIC | 1100 – 1400 psi |
| MIXING RATIO | 1:1 by Volume |
| RECOMMENDED MIX CHAMBER SIZE | 10-15 lbs./minute (i.e. 01-Graco AR4242) |
| STORAGE STABILITY (SHELF LIFE) | 6 Months |

*The values represented in the Equipment Settings chart provides initial optimum settings. Actual operating ranges will vary as ambient air; humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the yield, adhesion and cured physical properties of the foam. Applicator must make adjustments as conditions vary.

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SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Form: Mixture

Product Name: Accufoam OC; Accufoam OC Winter

Synonyms: Resin, Polyurethane resin

1.2 INTENDED USE OF THE PRODUCT

Use of the Substance/Mixture:

Use in conjunction with isocyanate component.

Spray foam insulation for commercial and residential use

1.3 NAME, ADDRESS, AND TELEPHONE OF THE RESPONSIBLE PARTY COMPANY

PARTY COMPANY

Creative Polymer Solutions, LLC.

2720 Southeastern Circle, Birmingham, AL 35215

205-440-4996

www.accufoam.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: CHEMTREC: 1-703-741-5970

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE

GHS-US Classification

| | |
|-------------------|------|
| Skin Irrit. 2 | H315 |
| Eye Dam. 1 | H318 |
| Aquatic Acute 3 | H402 |
| Aquatic Chronic 3 | H412 |

Full text of hazard classes and H-statements : see section 16

2.2 LABEL ELEMENTS

GHS-US Labeling

| | |
|--|--|
| HAZARD PICTOGRAMS (GHS-US) | |
| SIGNAL WORD (GHS-US) | Danger |
| HAZARD STATEMENTS (GHS-US) | H302 - Harmful if swallowed H314 - Causes severe skin burns and eye damage. H318 - Causes serious eye irritation. |
| PRECAUTIONARY STATEMENTS (GHS-US) | P260 Do not breathe gas/mist/vapors/spray. P264 Wash thoroughly after handling. P270 Do not eat, drink or smoke when using this product. P280 - Wear protective gloves/protective clothing/eye protection/face protection |

PRECAUTIONARY STATEMENTS (GHS-US)

P301 +P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303+P361 + P353 IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water/shower

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P351 +P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

P310 - Immediately call a doctor, a POISON CENTER
P330 Rinse mouth.

P363 - Wash contaminated clothing before reuse
P405 Store locked up.

P501 Dispose of contents I container in accordance with current legislation.

2.3 OTHER HAZARDS

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 UNKNOWN ACUTE TOXICITY (GHS-US)

No Available Data

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCE

Not Applicable

3.2 MIXTURE

| CHEMICAL NAME | CAS NUMBER | %* |
|--|---------------|-------|
| Tris(1-chloro-2-propyl) phosphate | 13674-84-5 | 10-20 |
| Nonylphenol ethoxylates 9 EO; 4-nonylphenol polyethylene glycol ether branched; polyethylene glycol, mono(p-nonylphenol) ether, branched; 4-nonylphenol, branched, ethoxylated; poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenol)-omega-hydroxy-branched. | 127087-87-0 | 10-20 |
| 2-[[2-(Dimethylamino)ethyl]methylamino] ethanol | 2212-32-0 | 2-12 |
| Tertiary amine | Not Available | 2-12 |

Full text of H-phrases: see section 16

*The exact percentage of composition has been withheld as a trade secret [29 CFR 1910.1200].

SECTION 4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

First-aid measures General: Never give anything by mouth to an unconscious person.

If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS BOTH ACUTE AND DELAYED

Symptoms/Injuries: Causes skin irritation. Causes serious eye damage.

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3 ADVICE FOR FIREFIGHTERS

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Phosphorus oxides. Corrosive vapors.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General Measures: Do not breathe vapor, mist or spray. Do not get in eyes, on skin, or on clothing.

6.1.1 FOR NON-EMERGENCY PERSONNEL

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2 FOR EMERGENCY PERSONNEL

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2 ENVIRONMENTAL PRECAUTIONS

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4 REFERENCE TO OTHER SECTIONS

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Avoid breathing vapors, mist, spray. Do not get in eyes, on skin, or on clothing.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials.

Incompatible Materials: Strong acids, strong bases, strong oxidizers.

7.3 SPECIFIC END USE(S)

Use in conjunction with isocyanate component. For professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Proprietary Ingredient #6

| | | |
|----------|-------------------------------|----------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 10 mg/m ³ |
|----------|-------------------------------|----------------------|

Proprietary Ingredient #5

| | | |
|-----------|-------------------------|--|
| USA ACGIH | ACGIH TWA (ppm) | 0.05 ppm |
| USA ACGIH | ACGIH STEL (ppm) | 0.15 ppm |
| USA ACGIH | ACGIH chemical category | Skin - potential significant contribution to overall exposure by the cutaneous route |

8.2 EXPOSURE CONTROLS

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------|--------------|
| Physical State | Liquid |
| Appearance | Light Brown |
| Odor | Slight Anime |
| Relative Density | 1.05-1.09 |
| Viscosity | 300-350 |

9.2 OTHER INFORMATION

No Additional Information available

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY:

Hazardous reactions will not occur under normal conditions.

10.2 CHEMICAL STABILITY:

Stable under recommended handling and storage conditions (see section 7).

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with isocyanates may cause polymerization.

10.4 CONDITIONS TO AVOID:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5 INCOMPATIBLE MATERIALS:

Strong acids, strong bases, strong oxidizers.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity: Not Classified

Proprietary Ingredient #1

| | |
|---------------------|----------------|
| LD50 Oral Rat | 1500 mg/kg |
| LD50 Dermal Rabbit | >5000 mg/kg |
| LC50 Inhalation Rat | > 5.05 mg/l/4h |

Proprietary Ingredient #2

| | |
|---------------|------------|
| LD50 Oral Rat | 1310 mg/kg |
|---------------|------------|

Proprietary Ingredient #6

| | |
|---------------------|---|
| LD50 Oral Rat | 1120 mg/kg |
| LD50 Dermal Rabbit | 11890 mg/kg |
| LC50 Inhalation Rat | > 4600 mg/m ³ (Exposure time: 4 h) |

Proprietary Ingredient #4

| | |
|--------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
| ATE (Dermal) | 300.00 mg/kg body weight |

Proprietary Ingredient #5

| | |
|---------------------|------------------------------|
| LD50 Oral Rat | 910 mg/kg |
| LD50 Dermal Rabbit | 238 mg/kg |
| LC50 Inhalation Rat | 0.938 mg/l/4h |
| LC50 Inhalation Rat | 117 ppm (Exposure time: 6 h) |

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

Ecology-General: Harmful to aquatic life with long-lasting effects

Proprietary Ingredient #1

| | |
|--------------------|--|
| LC50 Fish 1 | 56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| EC50 Daphnia 1 | 63 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| ErC50 (Algae) | 82 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| NOEC Chronic Algae | 6 mg/l |

Proprietary Ingredient #2

| | |
|-------------|-----------|
| LC50 Fish 1 | 11.6 mg/l |
|-------------|-----------|

Proprietary Ingredient #6

| | |
|----------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1 | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

Proprietary Ingredient #5

| | |
|--------------------|---|
| LC50 Fish 1 | 131.2 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static]) |
| EC50 Daphnia 1 | 102 mg/l (Exposure time: 48 h - Species: Daphnia magna [static]) |
| NOEC Chronic Algae | 0.26 mg/l |

12.2 PERSISTENCE AND DEGRADABILITY
Accufoam OC

Persistence and Degradability: May cause long-term adverse effects in the environment.

12.3 BIOACCUMULATIVE POTENTIAL
Accufoam OC

| | |
|---------------------------|-----------------|
| Bioaccumulative Potential | Not established |
|---------------------------|-----------------|

Proprietary Ingredient #1

| | |
|------------|-----------|
| BCF Fish 1 | 1.9 - 4.6 |
| Log Pow | 2.59 |

Proprietary Ingredient #6

| | |
|------------|------------------|
| BCF Fish 1 | 100 - 180 |
| Log Pow | -1.98 (at 25 °C) |

12.4 MOBILITY IN SOIL

No additional information available

12.5 OTHER ADVERSE EFFECTS

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS
13.1 WASTE TREATMENT METHODS

Waste Disposal Recommendations: Dispose of contents/container in accordance

with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology- Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1 IN ACCORDANCE WITH DOT

Not regulated for transport

14.2 IN ACCORDANCE WITH IMDG

Not regulated for transport

14.3 IN ACCORDANCE WITH IATA

Not regulated for transport

SECTION 15: REGULATORY INFORMATION
15.1 US FEDERAL REGULATIONS
Accufoam OC

SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard

Proprietary Ingredient #1

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #2

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

Proprietary Ingredient #6

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #3

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #5

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 US STATE REGULATIONS
Proprietary Ingredient #6

U.S. - Pennsylvania - RTK (Right to Know) List

Proprietary Ingredient #5

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

DATE OF PREPARATION OR LATEST REVISION: 02/12/2018

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases

| | |
|-------------------------------------|---|
| Acute Tox. 3 (Dermal) | Acute toxicity (dermal) Category 3 |
| Acute Tox. 4 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 3 | Hazardous to the aquatic environment - Acute Hazard Category 3 |
| Aquatic Chronic 2 | Hazardous to the aquatic environment - Chronic Hazard Category 2 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Eye Dam. 1 | Serious eye damage/eye irritation Category 1 |
| Flam. Liq. 4 | Flammable liquids Category 4 |
| Skin Corr. 1B | Skin corrosion/irritation Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H227 | Combustible liquid |
| H302 | Harmful if swallowed |
| H311 | Toxic in contact with skin |
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H332 | Harmful if inhaled |
| H335 | May cause respiratory irritation |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H402 | Harmful to aquatic life |
| H411 | Toxic to aquatic life with long lasting effects |
| H412 | Harmful to aquatic life with long lasting effects |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

THERMAL INSULATION AND AIR BARRIER
 ER-842 CCRR-0371 | CSI Section: 07 21 00

PRODUCT DESCRIPTION

Accufoam AF1 is a two-component, one-by-one-by-volume spray-applied polyurethane foam. Accufoam AF1 is a high-yield, low-density, no-mix, spray-applied insulation foam, which contains zero ozone-depleting blowing agents and is designed to provide good thermal performance and a significant control of air infiltration of an air-barrier assembly. Accufoam AF1 is 100% water blown.



PRODUCT DATA

| PROPERTY | TEST METHOD | VALUE |
|---------------------------------|----------------|-----------|
| R-VALUE @ 1" | ASTM C 518 | 3.7 |
| R-VALUE @ 3.5" | ASTM C 518 | 13 |
| CORE DENSITY % | ASTM D 1622 | 0.40-0.45 |
| OPEN-CELL CONTENT % | ASTM D 6226 | >90 |
| DIMENSIONAL STABILITY % | ASTM D 2126 | <9.3 |
| TENSILE STRENGTH (PSI) | ASTM D 1623 | 4.2 |
| AIR PERMEANCE | ASTM E 2178 | <0.02 |
| SOUND TRANSMISSION CLASS | ASTM E 90 | 38 |
| NOISE REDUCTION COEFFICIENT | ASTM C 423 | 0.55 |
| SURFACE BURNING CHARACTERISTICS | ASTM E 84 | Class-1 |
| RE-ENTRY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| RE-OCCUPANCY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| VISCOSITY-ISO AT 77F (CPS) | | 200 |
| VISCOSITY-RESIN AT 77F (CPS) | | 320 |

BURN CHARACTERISTICS

| PROPERTY | TEST METHOD | VALUE |
|--------------------|-------------|-------|
| FLAME SPREAD INDEX | ASTM E 84 | ≤ 25 |
| SMOKE DEVELOPMENT | ASTM E 84 | ≤ 450 |

IGNITION BARRIER AC377X

| TYPE | WFT | WALL | CEILING |
|----------------------------|-----------|-------------|-------------|
| DC315 | 4 MIL MIN | 8 INCH MAX | 14 INCH MAX |
| FS-IB | 6 MIL MIN | 10 INCH MAX | 15 INCH MAX |
| No Burn Plus XD / Plus ThB | 6 MIL MIN | 10 INCH MAX | 14 INCH MAX |

THERMAL BARRIER NFPA286

| TYPE | WFT | WALL | CEILING |
|-------|------------|-------------|-------------|
| DC315 | 18 MIL MIN | 10 INCH MAX | 12 INCH MAX |

UNVENTED ATTIC ASSEMBLIES CCRR 0354

| LOCATION | MAX THICKNESS (IN.) | MIN THICKNESS (IN.) |
|------------|---------------------|---------------------|
| ROOF DECK | 18" | 3" |
| ATTIC WALL | 18" | 3" |

**Consult with Creative Polymer Solutions Technical Department for Unvented Attic Guide drawings and specifications.*

APPLICATION PARAMETERS

| | |
|--------------------------------------|------------------|
| STORAGE TEMPERATURE | 60° – 90° |
| AMBIENT TEMPERATURE | 40° – 120° |
| SUBSTRATE TEMPERATURE | 40° – 120° |
| MOISTURE CONTENT OF SUBSTRATE | Less than 19% |
| MAXIMUM LIFT PER PASS | Not to exceed 8" |

EQUIPMENT SETTINGS

| | |
|--|--|
| PRE-HEATER: (A) COMPONENT – ISO | 120° – 140° |
| PRE-HEATER: (B) COMPONENT – RESIN | 120° – 140° |
| HOSE HEAT | 120° – 140° |
| FLUID PRESSURE – DYNAMIC | 1100 – 1400 psi |
| MIXING RATIO | 1:1 by Volume |
| RECOMMENDED MIX CHAMBER SIZE | 10-15 lbs./minute (i.e. 01-Graco AR4242) |
| STORAGE STABILITY | 6 Months |

**The values represented in the Equipment Settings chart provides initial optimum settings. Actual operating ranges will vary as ambient air; humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the yield, adhesion and cured physical properties of the foam. Applicator must make adjustments as conditions vary.*

Disclaimer: The data herein is to assist customers who desire to use our products to determine if the products are safe and suitable for their applications. The data presented herein is not intended for use by non-professional applicators, or those persons who do not purchase or utilize this product in the normal course of their business. Customers further assume full responsibility for quality control, testing and determining whether the products are suitable for each individual application. To the best of Creative Polymers knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. NO WARRANTIES OF ANYKIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAYBE SUED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF CREATIVE POLYMER'S TERMS AND CONDITIONS OF SALE.

SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Form: Mixture

Product Name: Accufoam AF1

Synonyms: Resin, Polyurethane resin

1.2 INTENDED USE OF THE PRODUCT

Use of the Substance/Mixture:

Use in conjunction with isocyanate component. Spray Foam Insulation for commercial and residential use.

1.3 NAME, ADDRESS, AND TELEPHONE OF THE RESPONSIBLE PARTY COMPANY

PARTY COMPANY

Creative Polymer Solutions, LLC.
2720 Southeastern Circle, Birmingham, AL 35215
205-440-4996
www.accufoam.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: CHEMTREC: 1-703-741-5970

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE


GHS-US Classification

| | |
|-------------------|------|
| Skin Irrit. 2 | H315 |
| Eye Dam. 1 | H318 |
| Aquatic Acute 3 | H402 |
| Aquatic Chronic 3 | H412 |

Full text of hazard classes and H-statements : see section 16

2.2 LABEL ELEMENTS

GHS-US Labeling

| | |
|-----------------------------------|---|
| HAZARD PICTOGRAMS (GHS-US) |  |
| SIGNAL WORD (GHS-US) | Danger |
| HAZARD STATEMENTS (GHS-US) | H302 - Harmful if swallowed H314 - Causes severe skin burns and eye damage. H319 - Causes serious eye irritation. H361 - Suspected of damaging fertility or the unborn. H373 - May cause damage to organs through prolonged or repeated exposure. |

PRECAUTIONARY STATEMENTS (GHS-US)

P101 - If medical advice is needed, have product container or label available

P102 - Keep out of reach of children

P103 - Read label before use

P201 - Obtain special instructions before use.

P202 - Do not handle until all safety precautions have been read and understood.

P260 Do not breathe gas/mist/vapours/spray.

P264 Wash thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P273 Avoid release to the environment.

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 +P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.

P302+P361 + P354 IF ON SKIN: Take off immediately all contaminated clothing. Immediately rinse with water for several minutes.

PRECAUTIONARY STATEMENTS (GHS-US)

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305+P354 +P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313 IF exposed or concerned: Get medical advice/attention.

P361 Get emergency medical help immediately.

P332+P313 If skin irritation occurs: Get medical advice/attention.

P330 Rinse mouth.

P337+P313 If eye irritation persists: Get medical advice/attention.

P362+364 Take off contaminated clothing and wash it before reuse.

P391 Collect spillage.

P405 Store locked up.

P501 Dispose of contents / container in accordance with current legislation.

2.3 OTHER HAZARDS

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 UNKNOWN ACUTE TOXICITY (GHS-US)

No Available Data

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS
3.1 SUBSTANCE

Not Applicable

3.2 MIXTURE

| CHEMICAL NAME | CAS NUMBER | %* |
|---|---------------|-------|
| Tris(1-chloro-2-propyl) phosphate | 13674-84-5 | 10-20 |
| Nonylphenol ethoxylates 9 EO; 4-nonylphenol polyethylene glycol ether branched; polyethylene glycol, mono(p-nonylphenol) ether, branched; 4-nonylphenol, branched, ethoxylated; poly(oxy-1,2-ethanediyl), alpha-(4-nonylphenol)-omega-hydroxy-branched. | 127087-87-0 | 10-20 |
| 2-[[2-(Dimethylamino)ethyl]methylamino] ethanol | 2212-32-0 | 2-12 |
| Tertiary amine | Not Available | 2-12 |
| Octamethylcyclotetrasiloxane | 556-67-2 | 1-10 |

Full text of H-phrases: see section 16

*The exact percentage of composition has been withheld as a trade secret [29 CFR 1910.1200].

SECTION 4: FIRST AID MEASURES
4.1 DESCRIPTION OF FIRST AID MEASURES

First-aid measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Drench affected area with water for at least 15 minutes. Obtain medical attention if irritation develops or persists.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS BOTH ACUTE AND DELAYED

Symptoms/Injuries: Causes skin irritation. Causes serious eye damage.

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES
5.1 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Water spray, dry chemical, foam, carbon dioxide.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3 ADVICE FOR FIREFIGHTERS

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Phosphorus oxides. Corrosive vapors.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General Measures: Do not breathe vapor, mist or spray. Do not get in eyes, on skin, or on clothing.

6.1.1 FOR NON-EMERGENCY PERSONNEL

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2 FOR EMERGENCY PERSONNEL

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2 ENVIRONMENTAL PRECAUTIONS

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Containment: Contain any spills with dikes or absorbents to prevent migration and

Proprietary Ingredient #6

| | | |
|----------|-------------------------------|----------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 10 mg/m ³ |
|----------|-------------------------------|----------------------|

Proprietary Ingredient #5

| | | |
|-----------|-------------------------|--|
| USA ACGIH | ACGIH TWA (ppm) | 0.05 ppm |
| USA ACGIH | ACGIH STEL (ppm) | 0.15 ppm |
| USA ACGIH | ACGIH chemical category | Skin - potential significant contribution to overall exposure by the cutaneous route |

8.2 EXPOSURE CONTROLS

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------|--------------|
| Physical State | Liquid |
| Appearance | Amber |
| Odor | Slight Amine |
| pH | 8-10 |
| Relative Density | 1.05 |
| Viscosity (cPs) | 300-350 |

9.2 OTHER INFORMATION

No Additional Information available

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY:

Hazardous reactions will not occur under normal conditions.

10.2 CHEMICAL STABILITY:

Stable under recommended handling and storage conditions (see section 7).

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

Contact with isocyanates may cause polymerization.

10.4 CONDITIONS TO AVOID:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5 INCOMPATIBLE MATERIALS:

Strong acids, strong bases, strong oxidizers.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

None expected under normal conditions of use.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity: Not Classified

Proprietary Ingredient #1

| | |
|---------------------|----------------|
| LD50 Oral Rat | 1500 mg/kg |
| LD50 Dermal Rabbit | >5000 mg/kg |
| LC50 Inhalation Rat | > 5.05 mg/l/4h |

Proprietary Ingredient #2

| | |
|---------------|------------|
| LD50 Oral Rat | 1310 mg/kg |
|---------------|------------|

Proprietary Ingredient #6

| | |
|---------------------|---|
| LD50 Oral Rat | 1120 mg/kg |
| LD50 Dermal Rabbit | 11890 mg/kg |
| LC50 Inhalation Rat | > 4600 mg/m ³ (Exposure time: 4 h) |

Proprietary Ingredient #4

| | |
|--------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
| ATE (Dermal) | 300.00 mg/kg body weight |

Proprietary Ingredient #5

| | |
|---------------------|------------------------------|
| LD50 Oral Rat | 910 mg/kg |
| LD50 Dermal Rabbit | 238 mg/kg |
| LC50 Inhalation Rat | 0.938 mg/l/4h |
| LC50 Inhalation Rat | 117 ppm (Exposure time: 6 h) |

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: None expected under normal conditions of use.

SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

Ecology-General: Harmful to aquatic life with long-lasting effects

Proprietary Ingredient #1

| | |
|--------------------|--|
| LC50 Fish 1 | 56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| EC50 Daphnia 1 | 63 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| ErC50 (Algae) | 82 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| NOEC Chronic Algae | 6 mg/l |

Proprietary Ingredient #2

| | |
|-------------|-----------|
| LC50 Fish 1 | 11.6 mg/l |
|-------------|-----------|

Proprietary Ingredient #6

| | |
|----------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1 | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

Proprietary Ingredient #5

| | |
|--------------------|---|
| LC50 Fish 1 | 131.2 mg/l (Exposure time: 96 h - Species: Danio rerio [semi-static]) |
| EC50 Daphnia 1 | 102 mg/l (Exposure time: 48 h - Species: Daphnia magna [static]) |
| NOEC Chronic Algae | 0.26 mg/l |

12.2 PERSISTENCE AND DEGRADABILITY
Accufoam OC

Persistence and Degradability: May cause long-term adverse effects in the environment.

12.3 BIOACCUMULATIVE POTENTIAL
Accufoam OC

| | |
|---------------------------|-----------------|
| Bioaccumulative Potential | Not established |
|---------------------------|-----------------|

Proprietary Ingredient #1

| | |
|------------|-----------|
| BCF Fish 1 | 1.9 - 4.6 |
| Log Pow | 2.59 |

Proprietary Ingredient #6

| | |
|------------|------------------|
| BCF Fish 1 | 100 - 180 |
| Log Pow | -1.98 (at 25 °C) |

12.4 MOBILITY IN SOIL

No additional information available

12.5 OTHER ADVERSE EFFECTS

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS
13.1 WASTE TREATMENT METHODS

Waste Disposal Recommendations: Dispose of contents/container in accordance

with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology- Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1 IN ACCORDANCE WITH DOT

Not regulated for transport

14.2 IN ACCORDANCE WITH IMDG

Not regulated for transport

14.3 IN ACCORDANCE WITH IATA

Not regulated for transport

SECTION 15: REGULATORY INFORMATION
15.1 US FEDERAL REGULATIONS
Accufoam OC

SARA Section 311/312 Hazard Classes: Immediate (acute) health hazard

Proprietary Ingredient #1

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #2

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e., Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

Proprietary Ingredient #6

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #3

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Proprietary Ingredient #5

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 US STATE REGULATIONS
Proprietary Ingredient #6

U.S. - Pennsylvania - RTK (Right to Know) List

Proprietary Ingredient #5

U.S. - New Jersey - Right to Know Hazardous Substance List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

DATE OF PREPARATION OR LATEST REVISION: 02/12/2018

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases

| | |
|-------------------------------------|---|
| Acute Tox. 3 (Dermal) | Acute toxicity (dermal) Category 3 |
| Acute Tox. 4 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 3 | Hazardous to the aquatic environment - Acute Hazard Category 3 |
| Aquatic Chronic 2 | Hazardous to the aquatic environment - Chronic Hazard Category 2 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Eye Dam. 1 | Serious eye damage/eye irritation Category 1 |
| Flam. Liq. 4 | Flammable liquids Category 4 |
| Skin Corr. 1B | Skin corrosion/irritation Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H227 | Combustible liquid |
| H302 | Harmful if swallowed |
| H311 | Toxic in contact with skin |
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H332 | Harmful if inhaled |
| H335 | May cause respiratory irritation |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H402 | Harmful to aquatic life |
| H411 | Toxic to aquatic life with long lasting effects |
| H412 | Harmful to aquatic life with long lasting effects |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only.

SDS US (GHS HazCom)

THERMAL INSULATION AND AIR BARRIER
 ESR-699 | CSI Section: 07 21 00

PRODUCT DESCRIPTION

Accufoam CC is a two-component, one-by-one-by-volume spray-applied polyurethane foam. Accufoam CC is a high-yield, medium-density, spray-applied insulation foam, and is designed to provide good thermal performance and a significant control of air infiltration of an air-barrier assembly.



PRODUCT DATA

| PROPERTY | TEST METHOD | VALUE |
|---------------------------------|----------------|------------------|
| R-VALUE @ 1" | ASTM C 518 | 6.52 |
| R-VALUE @ 3.5" | ASTM C 518 | 23 |
| CORE DENSITY (PCF) | ASTM D 1622 | 1.8-2.0 |
| OPEN-CELL CONTENT % | ASTM D 6226 | <5 |
| DIMENSIONAL STABILITY % | ASTM D 2126 | <8.6 |
| TENSILE STRENGTH (PSI) | ASTM D 1623 | 53.5 |
| COMPRESSIVE STRENGTH (PCF) | ASTM D 1621 | 31.75 |
| AIR PERMEANCE | ASTM E 2178 | <0.02 |
| SURFACE BURNING CHARACTERISTICS | ASTM E 84 | Class-1 |
| CRITICAL RADIANT HEAT FLUX | ASTM E 970 | Pass |
| WATER VAPOR PERMEANCE | ASTM E 96 | 1.77 Perms at 1" |
| RE-ENTRY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| RE-OCCUPANCY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| VISCOSITY-ISO AT 77F (CPS) | | 200 |

BURN CHARACTERISTICS

| PROPERTY | TEST METHOD | VALUE |
|--------------------|-------------|-------|
| FLAME SPREAD INDEX | ASTM E 84 | ≤ 25 |
| SMOKE DEVELOPMENT | ASTM E 84 | ≤ 450 |

THERMAL BARRIER NFPA286

| TYPE | WFT | WALL | CEILING | APPLICATION RATE |
|-------|------------|--------------|--------------|-------------------|
| DC315 | 19 MIL MIN | 5.5 INCH MAX | 9.5 INCH MAX | 1.2 gal/100 SQ FT |

IGNITION BARRIER AC377X

Complies with the applicable requirements of AC377 Appendix X for use in attics and crawl spaces without a prescriptive ignition barrier

TEMPERATURE GRADES

| REACTIVITIES AVAILABLE | AMBIENT TEMPERATURE RANGE |
|------------------------|---------------------------|
| SUMMER + | > 95°F |
| SUMMER | 70°F – 95°F |
| REGULAR | 50°F – 70°F |
| WINTER | 30°F – 50°F |

APPLICATION PARAMETERS

| | |
|-------------------------------|------------------|
| STORAGE TEMPERATURE | 60° – 90° |
| AMBIENT TEMPERATURE | 30° – 120° |
| SUBSTRATE TEMPERATURE | 30° – 120° |
| MOISTURE CONTENT OF SUBSTRATE | Less than 19% |
| MAXIMUM LIFT PER PASS | Not to exceed 3" |

EQUIPMENT SETTINGS

| | |
|-----------------------------------|--|
| PRE-HEATER: (A) COMPONENT – ISO | 110° – 130° |
| PRE-HEATER: (B) COMPONENT – RESIN | 110° – 130° |
| HOSE HEAT | 110° – 130° |
| FLUID PRESSURE – DYNAMIC | 1100 – 1400 psi |
| MIXING RATIO | 1:1 by Volume |
| RECOMMENDED MIX CHAMBER SIZE | 10-15 lbs./minute (i.e. 01-Graco AR4242) |
| STORAGE STABILITY | 6 Months |

**The values represented in the Equipment Settings chart provides initial optimum settings. Actual operating ranges will vary as ambient air; humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the yield, adhesion and cured physical properties of the foam. Applicator must make adjustments as conditions vary.*

Disclaimer: The data herein is to assist customers who desire to use our products to determine if the products are safe and suitable for their applications. The data presented herein is not intended for use by non-professional applicators, or those persons who do not purchase or utilize this product in the normal course of their business. Customers further assume full responsibility for quality control, testing and determining whether the products are suitable for each individual application. To the best of Creative Polymers knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE SUED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF CREATIVE POLYMER'S TERMS AND CONDITIONS OF SALE.

SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Names: Accufoam CC Winter; Accufoam CC Regular; Accufoam CC Summer; and Accufoam CC Summer Plus

1.2 INTENDED USE OF THE PRODUCT

Use of the Substance/Mixture: Closed-cell insulation for commercial and residential use.

1.3 NAME, ADDRESS, AND TELEPHONE OF THE RESPONSIBLE PARTY COMPANY

Creative Polymer Solutions, LLC.
2720 Southeastern Circle, Birmingham, AL 35215
205-440-4996
www.accufoam.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: CHEMTREC: 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE


GHS-US Classification

| | |
|-------------------|------|
| Skin Irrit. 2 | H315 |
| Eye Dam. 1 | H318 |
| Carc. 2 | H351 |
| Repr. 2 | H361 |
| STOT RE 2 | H373 |
| Aquatic Chronic 3 | H412 |

Full text of hazard classes and H-statements: see section 16

2.2 LABEL ELEMENTS

GHS-US Labeling

| | |
|-----------------------------------|---|
| HAZARD PICTOGRAMS (GHS-US) |  |
| SIGNAL WORD (GHS-US) | Danger |
| HAZARD STATEMENTS (GHS-US) | <p>H302 - Harmful if swallowed.</p> <p>H314 - Causes severe skin burns and eye damage.</p> <p>H318 - Causes serious eye damage</p> <p>H373 - May cause damage to organs (kidneys) through prolonged or repeated exposure (oral route of exposure)</p> |

PRECAUTIONARY STATEMENTS (GHS-US)

P301+P316 - IF SWALLOWED: Rinse mouth. Get emergency medical help immediately.

P302+P361+P354 - IF ON SKIN: Take off immediately all contaminated clothing, immediately rinse with water for several minutes.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P354 + P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P316 Get emergency medical help immediately.

P331 Do NOT induce vomiting.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 OTHER HAZARDS

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 UNKNOWN ACUTE TOXICITY (GHS-US)

No Available Data

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCE

Not Applicable

3.2 MIXTURE

| CHEMICAL NAME | CAS NUMBER | %* |
|---|---------------------------------------|-------|
| Proprietary polyester resin (75-95%) 2,2'-oxybisethanol (10-15%) diethylene glycol, dioxane (0.1-0.5%) | Not Available 111-46-6 123-91-1 | 10-20 |
| Oxirane, 2-methyl-, polymer with oxirane ether with 2,6-bis[[bis-(2-hydroxyethyl)amino]methyl]-4-branched nonylphenol | 940912-28-7 34354-45-5 | 10-20 |
| 2-Dimethylaminoethanol | 108-01-0 | 1-5 |
| Bis(3-dimethylaminopropyl)-n,n-dimethylpropanediamine | 33329-35-0 | 1-5 |
| Tris(1-chloro-2-propyl) phosphate | 13674-84-5 | 10-20 |
| Propane, 1, 1, 1, 2, 3, 3, 3-heptafluoro- (5-10%) | 431-89-0 | 2-12 |
| Tertiary amine catalyst (>25%) ethylene glycol (>25%) | Not Available 107-21-1 | 0-7 |

Full text of H-phrases: see section 16

*The exact percentage of composition has been withheld as a trade secret [29 CFR 1910.1200].

SECTION 4: FIRST AID MEASURES
4.1 DESCRIPTION OF FIRST AID MEASURES

First-aid measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Immediately drench affected area with water for at least 15 minutes. If exposed or concerned: Get medical advice/attention.

First-aid Measures After Eye Contact: Immediately rinse with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS BOTH ACUTE AND DELAYED

Symptoms/Injuries: May cause damage to organs through prolonged or repeated exposure. Suspected of damaging fertility or the unborn child. Causes skin irritation. Suspected of causing cancer. Causes serious eye damage.

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES
5.1 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Water spray, fog, carbon dioxide (CO₂), alcohol-resistant foam, or dry chemical.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3 ADVICE FOR FIREFIGHTERS

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides. Black smoke. Acrid smoke and irritating fumes.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES
6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray.

6.1.1 FOR NON-EMERGENCY PERSONNEL

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2 FOR EMERGENCY PERSONNEL

Protective Equipment:

Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2 ENVIRONMENTAL PRECAUTIONS

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Precautions for Safe Handling: Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, fumes, mist, or spray. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Obtain special instructions before use.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. reactive metals (Al, K, Zn ...). Isocyanates.

7.3 SPECIFIC END USE(S)

Closed cell insulation, for professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Diethylene glycol (111-46-6)

| | | |
|----------|-------------------------------|----------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 10 mg/m ³ |
|----------|-------------------------------|----------------------|

1,4-Dioxane (123-91-1)

| | | |
|-----------|--|--|
| USA ACGIH | ACGIH TWA (ppm) | 20 ppm |
| USA ACGIH | ACGIH chemical category | Skin - potential significant contribution to overall exposure by the cutaneous route, Confirmed Animal Carcinogen with Unknown Relevance to Humans |
| USA NIOSH | NIOSH REL (ceiling) (mg/m ³) | 3.6 mg/m ³ |
| USA NIOSH | NIOSH REL (ceiling) (ppm) | 1 ppm |
| USA IDLH | US IDLH (ppm) | 500 ppm |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 360 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (ppm) | 100 ppm |
| USA OSHA | Limit value category (OSHA) | prevent or reduce skin absorption |

Triethyl phosphate (78-40-0)

| | | |
|----------|-------------------------------|------------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 7.45 mg/m ³ |
|----------|-------------------------------|------------------------|

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

| | | |
|----------|-------------------------------|------------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 3350 mg/m ³ |
| USA AIHA | WEEL TWA (ppm) | 500 ppm |

8.2 EXPOSURE CONTROLS

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen-deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|--|-------------------|
| Physical State | Liquid |
| Appearance | Light Brown |
| Odor | Slight Amine |
| Flash Point (F) | 95.9 |
| Relative Density | 1.14 |
| Solubility | No Data Available |
| Partition Coefficient: N-Octanol/Water | No Data Available |
| Viscosity (cPs) | 720 |

9.2 OTHER INFORMATION

No Additional Information available

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY:

Hazardous reactions will not occur under normal conditions.

10.2 CHEMICAL STABILITY:

Stable under recommended handling and storage conditions (see section 7).

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

Hazardous polymerization will not occur.

10.4 CONDITIONS TO AVOID:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5 INCOMPATIBLE MATERIALS:

Strong acids, strong bases, strong oxidizers. reactive metals (Al, K, Zn ...). Isocyanates.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon oxides (CO, CO₂). Phosphorus oxides. Nitrogen oxides. Hydrochloric acid fumes may be generated. Hydrogen bromide. Phosphine. aldehydes, ketones. Acrid smoke and irritating fumes.

SECTION 11: TOXICOLOGICAL INFORMATION
11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity: Not Classified

Diethylene glycol (111-46-6)

| | |
|---------------------|---|
| LD50 Oral Rat | 1120 mg/kg |
| LD50 Dermal Rabbit | 11890 mg/kg |
| LC50 Inhalation Rat | > 4600 mg/m ³ (Exposure time: 4 h) |
| ATE (Dermal) | 11,890.00 mg/kg body weight |

1,4-Dioxane (123-91-1)

| | |
|---------------------|------------------------------|
| LD50 Oral Rat | 5170 mg/kg |
| LD50 Dermal Rabbit | 7600 mg/kg |
| LC50 Inhalation Rat | 46 mg/l (Exposure time: 2 h) |
| LC50 Inhalation Rat | 32.5 mg/l/4h |

Triethyl phosphate (78-40-0)

| | |
|---------------------|---|
| LD50 Oral Rat | 1100 - 1600 mg/kg |
| LD50 Dermal Rabbit | >20 g/kg |
| LC50 Inhalation Rat | > 8187 mg/m ³ (Exposure time: 4 h) |

1,3-Propanediamine, N,N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl- (33329-35-0)

| | |
|------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
|------------|--------------------------|

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

| | |
|---------------------|---------------|
| LC50 Inhalation Rat | > 690 mg/l/4h |
|---------------------|---------------|

1,2-Propanediol, polymer with ethyloxirane and oxirane, potassium salt (134737-27-2)

| | |
|------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
|------------|--------------------------|

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

1,4-Dioxane (123-91-1)

| | |
|---|---|
| IARC group | 2B |
| National Toxicology Program (NTP) Status | Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen. |
| OSHA Hazard Communication Carcinogen List | In OSHA Hazard Communication Carcinogen list. |

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning,

dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

SECTION 12: ECOLOGICAL INFORMATION
12.1 TOXICITY

Ecology-General: Harmful to aquatic life with long lasting effects

Diethylene glycol (111-46-6)

| | |
|----------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1 | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

1,4-Dioxane (123-91-1)

| | |
|----------------|---|
| LC50 Fish 1 | 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static]) |
| EC50 Daphnia 1 | 163 mg/l (Exposure time: 48 h - Species: water flea [Static]) |
| LC50 Fish 2 | 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [semi-static]) |

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|--------------------|--|
| LC50 Fish 1 | 56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| EC50 Daphnia 1 | 63 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| ErC50 (Algae) | 82 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| NOEC Chronic Algae | 6 mg/l |

2-(Dimethylamino)ethanol (108-01-0)

| | |
|----------------|---|
| LC50 Fish 1 | 81 mg/l (Exposure time: 96 h - Species: Pimephales promelas (static)) |
| EC50 Daphnia 1 | 98.77 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| ErC50 (Algae) | 35 mg/l |

12.2 PERSISTENCE AND DEGRADABILITY
Accufoam CC

Persistence and Degradability: May cause long-term adverse effects in the environment.

12.3 BIOACCUMULATIVE POTENTIAL
Accufoam CC

| | |
|---------------------------|-----------------|
| Bioaccumulative Potential | Not established |
|---------------------------|-----------------|

Diethylene glycol (111-46-6)

| | |
|------------|------------------|
| BCF Fish 1 | 100 - 180 |
| Log Pow | -1.98 (at 25 °C) |

1,4-Dioxane (123-91-1)

| | |
|------------|-----------|
| BCF Fish 1 | 0.2 - 0.7 |
| Log Pow | -0.42 |

Triethyl phosphate (78-40-0)

| | |
|---------|------------|
| Log Pow | 0.8 - 1.11 |
|---------|------------|

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|------------|-----------|
| BCF Fish 1 | 1.9 - 4.6 |
| Log Pow | 2.59 |

2-(Dimethylamino)ethanol (108-01-0)

| | |
|---------|------------------|
| Log Pow | -0.55 (at 23 °C) |
|---------|------------------|

12.4 MOBILITY IN SOIL

No additional information available

12.5 OTHER ADVERSE EFFECTS

Other Adverse Effects: This product may degrade to yield endocrine disruptor(s).

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS
13.1 WASTE TREATMENT METHODS

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology- Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1 IN ACCORDANCE WITH DOT

Not regulate except in bulk. Bulk containers (>5,000 lbs) must be transported as:

UN3082, Environmentally Hazardous Substance, Liquid, NOS, Class 9, PGIII

Proper Shipping Name: UN2083, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Contains 1,4-Dioxane), g, PG III

Hazard Class: 9

Identification Number: NA3082

Label Codes: 9

Packing Group: III

ERG Number: 171


14.2 IN ACCORDANCE WITH IMDG

Not regulated for transport

14.3 IN ACCORDANCE WITH IATA

Not regulated for transport

SECTION 15: REGULATORY INFORMATION
15.1 US FEDERAL REGULATIONS

Accufoam CC: SARA Section 311/312 Hazard Classes

Health hazard: Reproductive toxicity

Health hazard: Specific target organ toxicity (single or repeated exposure)

Health hazard: Skin corrosion or Irritation

Health hazard: Carcinogenicity

Health hazard: Serious eye damage or eye irritation

Diethylene glycol (111-46-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethylene oxide, polymer with 2,2'-iminodiethanol and propylene oxide (34354-45-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e, Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710 (C)).

Triethyl phosphate (78-40-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

1,3-Propanediamine, N,N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl- (33329-35-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag:

P - P - indicates a commenced PMN substance.

S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.

2-(Dimethylamino)ethanol (108-01-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 US STATE REGULATIONS
1,4-Dioxane (123-91-1)

U.S. - California - Proposition 65 - Carcinogens List: WARNING: This product contains chemicals known to the State of California to cause cancer.

Diethylene glycol (111-46-6)

U.S. - Pennsylvania - RTK (Right to Know) List

1,4-Dioxane (123-91-1)

U.S. - Massachusetts: Right To Know List

U.S. - New Jersey: Right to Know Hazardous Substance List

U.S. - Pennsylvania: RTK (Right to Know) - Environmental Hazard List

U.S. - Pennsylvania: RTK (Right to Know) - Special Hazardous Substances

U.S. - Pennsylvania: RTK (Right to Know) List

2-(Dimethylamino)ethanol (108-01-0)

U.S. - Massachusetts: Right To Know List

U.S. - New Jersey: Right to Know Hazardous Substance List

U.S. - Pennsylvania: RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

DATE OF PREPARATION OR LATEST REVISION: 05/09/2018

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases

| | |
|----------------------------------|--|
| Acute Tox. 3 (Inhalation:vapour) | Acute toxicity (inhalation:vapour) Category 3 |
| Acute Tox. 4 (Dermal) | Acute toxicity (dermal) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 3 | Hazardous to the aquatic environment - Acute Hazard Category 3 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Carc. 2 | Carcinogenicity Category 2 |
| Eye Dam. 1 | Serious eye damage/eye irritation Category 1 |
| Eye Irrit. 2 | Serious eye damage/eye irritation Category 2 |
| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
| Flam. Liq. 2 | Flammable liquids Category 2 |
| Flam. Liq. 3 | Flammable liquids Category 3 |
| Repr. 2 | Reproductive toxicity Category 2 |
| Skin Corr. 1B | Skin corrosion/irritation Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H225 | Highly flammable liquid and vapour |
| H226 | Flammable liquid and vapour |
| H302 | Harmful if swallowed |
| H312 | Harmful in contact with skin |

| | |
|------|---|
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H331 | Toxic if inhaled |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H402 | Harmful to aquatic life |
| H412 | Harmful to aquatic life with long lasting effects |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

THERMAL INSULATION AND AIR BARRIER
 ESR-825 | CSI Section: 07 21 00

PRODUCT DESCRIPTION

Accufoam CC 1.7 is a two-component, one-by-one-by-volume spray-applied polyurethane foam. Accufoam CC 1.7 is a high-yield, medium-density, spray-applied insulation foam, and is designed to provide good thermal performance and a significant control of air infiltration of an air-barrier assembly.



PRODUCT DATA

| PROPERTY | TEST METHOD | VALUE |
|-------------------------------------|----------------|------------------|
| R-VALUE @ 1" | ASTM C 518 | 6.52 |
| R-VALUE @ 3.5" | ASTM C 518 | 23 |
| CORE DENSITY (PCF) | ASTM D 1622 | 1.60-1.80 |
| OPEN-CELL CONTENT % | ASTM D 6226 | -5 |
| DIMENSIONAL STABILITY % | ASTM D 2126 | <8.6 |
| TENSILE STRENGTH (LB ²) | ASTM D 1623 | 53.5 |
| COMPRESSIVE STRENGTH (PSI) | ASTM D 1621 | 31.75 |
| AIR PERMEANCE | ASTM E 2178 | <0.02 |
| SURFACE BURNING CHARACTERISTICS | ASTM E 84 | Class-1 |
| CRITICAL RADIANT HEAT FLUX | ASTM E 970 | Pass |
| WATER VAPOR PERMEANCE | ASTM E 96 | 1.77 Perms at 1" |
| RE-ENTRY PERIOD (HOURS) | ASTM D8445-22A | 1 |
| RE-OCCUPANCY PERIOD (HOURS) | ASTM D8445-22A | 1 |
| VISCOSITY-ISO AT 77F (CPS) | | 200 |
| VISCOSITY-RESIN AT 77F (CPS) | | 460-670 |

BURN CHARACTERISTICS

| PROPERTY | TEST METHOD | VALUE |
|--------------------|-------------|-------|
| FLAME SPREAD INDEX | ASTM E 84 | < 25 |
| SMOKE DEVELOPMENT | ASTM E 84 | < 450 |

THERMAL BARRIER NFPA286

| TYPE | WFT | WALL | CEILING |
|-------|------------|--------------|--------------|
| DC315 | 19 MIL MIN | 5.5 INCH MAX | 9.5 INCH MAX |

IGNITION BARRIER AC377X

Complies with the applicable requirements of AC377 Appendix X for use in attics and crawl spaces without a prescriptive ignition barrier

TEMPERATURE GRADES

| REACTIVITIES AVAILABLE | AMBIENT TEMPERATURE RANGE |
|------------------------|---------------------------|
| SUMMER + | > 95°F |
| SUMMER | 70°F – 95°F |
| REGULAR | 50°F – 70°F |
| WINTER | 30°F – 50°F |

APPLICATION PARAMETERS

| | |
|-------------------------------|------------------|
| STORAGE TEMPERATURE | 60° – 90° |
| AMBIENT TEMPERATURE | 30° – 120° |
| SUBSTRATE TEMPERATURE | 30° – 120° |
| MOISTURE CONTENT OF SUBSTRATE | Less than 19% |
| MAXIMUM LIFT PER PASS | Not to exceed 2" |

EQUIPMENT SETTINGS

| | |
|-----------------------------------|--|
| PRE-HEATER: (A) COMPONENT – ISO | 110° – 130° |
| PRE-HEATER: (B) COMPONENT – RESIN | 110° – 130° |
| HOSE HEAT | 110° – 130° |
| FLUID PRESSURE – DYNAMIC | 1100 – 1400 psi |
| MIXING RATIO | 1:1 by Volume |
| RECOMMENDED MIX CHAMBER SIZE | 10-15 lbs./minute (i.e. 01-Graco AR4242) |
| STORAGE STABILITY (SHELF LIFE) | 6 Months |

**The values represented in the Equipment Settings chart provides initial optimum settings. Actual operating ranges will vary as ambient air; humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the yield, adhesion and cured physical properties of the foam. Applicator must make adjustments as conditions vary.*

Disclaimer: The data herein is to assist customers who desire to use our products to determine if the products are safe and suitable for their applications. The data presented herein is not intended for use by non-professional applicators, or those persons who do not purchase or utilize this product in the normal course of their business. Customers further assume full responsibility for quality control, testing and determining whether the products are suitable for each individual application. To the best of Creative Polymers knowledge, all technical data contained herein is true and accurate as of the date of issuance and subject to change without prior notice. NO WARRANTIES OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OR MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE MADE REGARDING PRODUCTS DESCRIBED OR DESIGNS, DATA OR INFORMATION SET FORTH, OR THAT THE PRODUCTS, DESIGNS, DATA OR INFORMATION MAY BE SUED WITHOUT INFRINGING THE INTELLECTUAL PROPERTY RIGHTS OF OTHERS. IN NO CASE SHALL THE DESCRIPTIONS, INFORMATION, DATA OR DESIGNS PROVIDED BE CONSIDERED A PART OF CREATIVE POLYMER'S TERMS AND CONDITIONS OF SALE.

SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Names: Accufoam 1.7 Winter, Accufoam 1.7 Regular, Accufoam 1.7 Summer, Accufoam 1.7 Summer Plus

1.2 INTENDED USE OF THE PRODUCT

Use of the Substance/Mixture: Closed-cell insulation, for professional use only.

1.3 NAME, ADDRESS, AND TELEPHONE OF THE RESPONSIBLE PARTY COMPANY

Creative Polymer Solutions, LLC.
2720 Southeastern Circle, Birmingham, AL 35215
205-440-4996
www.accufoam.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: CHEMTREC: 800-424-9300

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE



GHS-US Classification

| | |
|-------------------|------|
| Skin Irrit. 2 | H315 |
| Eye Dam. 1 | H318 |
| Carc. 2 | H351 |
| Repr. 2 | H361 |
| STOT RE 2 | H373 |
| Aquatic Chronic 3 | H412 |

Full text of hazard classes and H-statements: see section 16

2.2 LABEL ELEMENTS

GHS-US Labeling

| | |
|-----------------------------------|---|
| HAZARD PICTOGRAMS (GHS-US) |   <p>GHS05 GHS08</p> |
| SIGNAL WORD (GHS-US) | Danger |
| HAZARD STATEMENTS (GHS-US) | <p>H315: Causes skin irritation.</p> <p>H318: Causes serious eye damage</p> <p>H351: Suspected of causing cancer.</p> <p>H361: Suspected of damaging fertility or the unborn child.</p> <p>H373: May cause damage to organs through prolonged or repeated exposure.</p> <p>H412: Harmful to aquatic life with long lasting effects.</p> |

PRECAUTIONARY STATEMENTS (GHS-US)

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P260: Do not breathe vapors, mist, or spray.

P264: Wash hands, forearms, and other exposed areas thoroughly after handling.

P273: Avoid release to the environment.

P280: Wear protective gloves, protective clothing, and eye protection.

P302+P352: If on skin: Wash with plenty of water.

P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308+P313: If exposed or concerned: Get medical advice/attention.

P310: Immediately call a poison center or doctor.

P314: Get medical advice/attention if you feel unwell.

P321: Specific treatment (see section 4 on this SDS).

P332+P313: If skin irritation occurs: Get medical advice/attention.

P362+P364: Take off contaminated clothing and wash it before reuse.

P405: Store locked up.

P501: Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3 OTHER HAZARDS

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 UNKNOWN ACUTE TOXICITY (GHS-US)

No Available Data

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCE

Not Applicable

3.2 MIXTURE

| NAME | PRODUCT | %* |
|---------------------------|---------------------------|-------|
| Proprietary Ingredient #1 | (CAS-No.) Trade secret | 10-20 |
| Proprietary Ingredient #2 | (CAS-No.) Trade secret | 1-10 |
| Proprietary Ingredient #3 | (CAS-No.) Trade secret | 1-6 |
| Proprietary Ingredient #4 | (CAS-No.) Trade secret | 1-8 |
| Proprietary Ingredient #5 | (CAS-No.) Trade secret | 1-3 |

Full text of H-phrases: see section 16

*The exact percentage of composition has been withheld as a trade secret [29 CFR 1910.1200].

SECTION 4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

First-aid measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Immediately drench affected area with water for at least 15 minutes. If exposed or concerned: Get medical advice/attention.

First-aid Measures After Eye Contact: Immediately rinse with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS BOTH ACUTE AND DELAYED

Symptoms/Injuries: May cause damage to organs through prolonged or repeated exposure. Suspected of damaging fertility or the unborn child. Causes skin irritation. Suspected of causing cancer. Causes serious eye damage.

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Water spray, fog, carbon dioxide (CO₂), alcohol-resistant foam, or dry chemical.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3 ADVICE FOR FIREFIGHTERS

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides. Black smoke. Acrid smoke and irritating fumes.

Other Information: Do not allow run-off from fire fighting to enter drains or water courses.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray.

6.1.1 FOR NON-EMERGENCY PERSONNEL

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2 FOR EMERGENCY PERSONNEL

Protective Equipment:

Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2 ENVIRONMENTAL PRECAUTIONS

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4 REFERENCE TO OTHER SECTIONS

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Precautions for Safe Handling: Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do not breathe vapors, fumes, mist, or spray. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Obtain special instructions before use.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. reactive metals (Al, K, Zn ...). Isocyanates.

7.3 SPECIFIC END USE(S)

Closed cell insulation, for professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Diethylene glycol (111-46-6)

| | | |
|----------|-------------------------------|----------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 10 mg/m ³ |
|----------|-------------------------------|----------------------|

1,4-Dioxane (123-91-1)

| | | |
|-----------|--|--|
| USA ACGIH | ACGIH TWA (ppm) | 20 ppm |
| USA ACGIH | ACGIH chemical category | Skin - potential significant contribution to overall exposure by the cutaneous route, Confirmed Animal Carcinogen with Unknown Relevance to Humans |
| USA NIOSH | NIOSH REL (ceiling) (mg/m ³) | 3.6 mg/m ³ |
| USA NIOSH | NIOSH REL (ceiling) (ppm) | 1 ppm |
| USA IDLH | US IDLH (ppm) | 500 ppm |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 360 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (ppm) | 100 ppm |
| USA OSHA | Limit value category (OSHA) | prevent or reduce skin absorption |

Triethyl phosphate (78-40-0)

| | | |
|----------|-------------------------------|------------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 7.45 mg/m ³ |
|----------|-------------------------------|------------------------|

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

| | | |
|----------|-------------------------------|------------------------|
| USA AIHA | WEEL TWA (mg/m ³) | 3350 mg/m ³ |
| USA AIHA | WEEL TWA (ppm) | 500 ppm |

8.2 EXPOSURE CONTROLS

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen-deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------|--------------|
| Physical State | Liquid |
| Appearance | Light Brown |
| Odor | Slight Amine |
| Relative Density | 1.14 |
| Viscosity | 540 |

9.2 OTHER INFORMATION

No Additional Information available

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY:

Hazardous reactions will not occur under normal conditions.

10.2 CHEMICAL STABILITY:

Stable under recommended handling and storage conditions (see section 7).

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

Hazardous polymerization will not occur.

10.4 CONDITIONS TO AVOID:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5 INCOMPATIBLE MATERIALS:

Strong acids, strong bases, strong oxidizers. reactive metals (Al, K, Zn ...). Isocyanates.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon oxides (CO, CO₂). Phosphorus oxides. Nitrogen oxides. Hydrochloric acid fumes may be generated. Hydrogen bromide. Phosphine. aldehydes, ketones. Acrid smoke and irritating fumes.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity: Not Classified

Diethylene glycol (111-46-6)

| | |
|---------------------|---|
| LD50 Oral Rat | 1120 mg/kg |
| LD50 Dermal Rabbit | 11890 mg/kg |
| LC50 Inhalation Rat | > 4600 mg/m ³ (Exposure time: 4 h) |
| ATE (Dermal) | 11,890.00 mg/kg body weight |

1,4-Dioxane (123-91-1)

| | |
|---------------------|------------------------------|
| LD50 Oral Rat | 5170 mg/kg |
| LD50 Dermal Rabbit | 7600 mg/kg |
| LC50 Inhalation Rat | 46 mg/l (Exposure time: 2 h) |
| LC50 Inhalation Rat | 32.5 mg/l/4h |

Triethyl phosphate (78-40-0)

| | |
|---------------------|---|
| LD50 Oral Rat | 1100 - 1600 mg/kg |
| LD50 Dermal Rabbit | >20 g/kg |
| LC50 Inhalation Rat | > 8187 mg/m ³ (Exposure time: 4 h) |

1,3-Propanediamine, N,N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl- (33329-35-0)

| | |
|------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
|------------|--------------------------|

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

| | |
|---------------------|---------------|
| LC50 Inhalation Rat | > 690 mg/l/4h |
|---------------------|---------------|

1,2-Propanediol, polymer with ethyloxirane and oxirane, potassium salt (134737-27-2)

| | |
|------------|--------------------------|
| ATE (Oral) | 500.00 mg/kg body weight |
|------------|--------------------------|

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye damage.

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Suspected of causing cancer.

1,4-Dioxane (123-91-1)

| | |
|---|---|
| IARC group | 2B |
| National Toxicology Program (NTP) Status | Evidence of Carcinogenicity, Reasonably anticipated to be Human Carcinogen. |
| OSHA Hazard Communication Carcinogen List | In OSHA Hazard Communication Carcinogen list. |

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated Exposure): May cause damage to organs through prolonged or repeated exposure.

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris,

or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure. Suspected of causing cancer.

SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

Ecology-General: Harmful to aquatic life with long lasting effects

Diethylene glycol (111-46-6)

| | |
|----------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1 | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

1,4-Dioxane (123-91-1)

| | |
|----------------|---|
| LC50 Fish 1 | 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static]) |
| EC50 Daphnia 1 | 163 mg/l (Exposure time: 48 h - Species: water flea [Static]) |
| LC50 Fish 2 | 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [semi-static]) |

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|--------------------|--|
| LC50 Fish 1 | 56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio [static]) |
| EC50 Daphnia 1 | 63 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 98 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static]) |
| ErC50 (Algae) | 82 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| NOEC Chronic Algae | 6 mg/l |

2-(Dimethylamino)ethanol (108-01-0)

| | |
|----------------|---|
| LC50 Fish 1 | 81 mg/l (Exposure time: 96 h - Species: Pimephales promelas (static)) |
| EC50 Daphnia 1 | 98.77 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| ErC50 (Algae) | 35 mg/l |

12.2 PERSISTENCE AND DEGRADABILITY
Accufoam CC

Persistence and Degradability: May cause long-term adverse effects in the environment.

12.3 BIOACCUMULATIVE POTENTIAL
Accufoam CC

| | |
|---------------------------|-----------------|
| Bioaccumulative Potential | Not established |
|---------------------------|-----------------|

Diethylene glycol (111-46-6)

| | |
|------------|------------------|
| BCF Fish 1 | 100 - 180 |
| Log Pow | -1.98 (at 25 °C) |

1,4-Dioxane (123-91-1)

| | |
|------------|-----------|
| BCF Fish 1 | 0.2 - 0.7 |
| Log Pow | -0.42 |

Triethyl phosphate (78-40-0)

| | |
|---------|------------|
| Log Pow | 0.8 - 1.11 |
|---------|------------|

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|------------|-----------|
| BCF Fish 1 | 1.9 - 4.6 |
| Log Pow | 2.59 |

2-(Dimethylamino)ethanol (108-01-0)

| | |
|---------|------------------|
| Log Pow | -0.55 (at 23 °C) |
|---------|------------------|

12.4 MOBILITY IN SOIL

No additional information available

12.5 OTHER ADVERSE EFFECTS

Other Adverse Effects: This product may degrade to yield endocrine disruptor(s).

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology- Waste Materials: Avoid release to the environment. This material is hazardous to the aquatic environment. Keep out of sewers and waterways.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1 IN ACCORDANCE WITH DOT

Not regulate except in bulk. Bulk containers (>5,000 lbs) must be transported as:

UN3082, Environmentally Hazardous Substance, Liquid, NOS, Class 9, PGIII

Proper Shipping Name: UN3082, Environmentally Hazardous Substances, N.O.S. (Contains 1,4-Dioxane), 9, PG III

Hazard Class: 9

Identification Number: NA3082

Label Codes: 9

Packing Group: III

ERG Number: 171


14.2 IN ACCORDANCE WITH IMDG

Not regulated for transport

14.3 IN ACCORDANCE WITH IATA

Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1 US FEDERAL REGULATIONS

Accufoam CC: SARA Section 311/312 Hazard Classes

Health hazard: Reproductive toxicity

Health hazard: Specific target organ toxicity (single or repeated exposure)

Health hazard: Skin corrosion or Irritation

Health hazard: Carcinogenicity

Health hazard: Serious eye damage or eye irritation

Diethylene glycol (111-46-6)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Ethylene oxide, polymer with 2,2'-iminodiethanol and propylene oxide (34354-45-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag: XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e, Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).

Triethyl phosphate (78-40-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

1,3-Propanediamine, N,N-bis[3-(dimethylamino)propyl]-N',N'-dimethyl- (33329-35-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

cis-1,1,1,4,4,4-Hexafluoro-2-butene (692-49-9)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

EPA TSCA Regulatory Flag:

P - P - indicates a commenced PMN substance.

S - S - indicates a substance that is identified in a proposed or final Significant New Uses Rule.

2-(Dimethylamino)ethanol (108-01-0)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2 US STATE REGULATIONS

1,4-Dioxane (123-91-1)

U.S. - California - Proposition 65 - Carcinogens List: WARNING: This product contains chemicals known to the State of California to cause cancer.

Diethylene glycol (111-46-6)

U.S. - Pennsylvania - RTK (Right to Know) List

1,4-Dioxane (123-91-1)

U.S. - Massachusetts: Right To Know List

U.S. - New Jersey: Right to Know Hazardous Substance List

U.S. - Pennsylvania: RTK (Right to Know) - Environmental Hazard List

U.S. - Pennsylvania: RTK (Right to Know) - Special Hazardous Substances

U.S. - Pennsylvania: RTK (Right to Know) List

2-(Dimethylamino)ethanol (108-01-0)

U.S. - Massachusetts: Right To Know List

U.S. - New Jersey: Right to Know Hazardous Substance List

U.S. - Pennsylvania: RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

DATE OF PREPARATION OR LATEST REVISION: 05/09/2018

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases

| | |
|----------------------------------|--|
| Acute Tox. 3 (Inhalation:vapour) | Acute toxicity (inhalation:vapour) Category 3 |
| Acute Tox. 4 (Dermal) | Acute toxicity (dermal) Category 4 |
| Acute Tox. 4 (Oral) | Acute toxicity (oral) Category 4 |
| Aquatic Acute 3 | Hazardous to the aquatic environment - Acute Hazard Category 3 |
| Aquatic Chronic 3 | Hazardous to the aquatic environment - Chronic Hazard Category 3 |
| Carc. 2 | Carcinogenicity Category 2 |
| Eye Dam. 1 | Serious eye damage/eye irritation Category 1 |
| Eye Irrit. 2 | Serious eye damage/eye irritation Category 2 |
| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
| Flam. Liq. 2 | Flammable liquids Category 2 |
| Flam. Liq. 3 | Flammable liquids Category 3 |
| Repr. 2 | Reproductive toxicity Category 2 |
| Skin Corr. 1B | Skin corrosion/irritation Category 1B |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H225 | Highly flammable liquid and vapour |
| H226 | Flammable liquid and vapour |
| H302 | Harmful if swallowed |
| H312 | Harmful in contact with skin |

| | |
|------|---|
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H331 | Toxic if inhaled |
| H335 | May cause respiratory irritation |
| H351 | Suspected of causing cancer |
| H361 | Suspected of damaging fertility or the unborn child |
| H373 | May cause damage to organs through prolonged or repeated exposure |
| H402 | Harmful to aquatic life |
| H412 | Harmful to aquatic life with long lasting effects |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

THERMAL INSULATION AND AIR BARRIER
 ESR-833



PRODUCT DESCRIPTION

Accufoam CC-HFO is a two-component, one-to-one by volume spray-applied polyurethane foam. Accufoam CC-HFO is a medium density spray foam designed to provide good thermal performance and a significant controller of air infiltration in an air barrier assembly. Accufoam HFO is low GWP and zero ODP.

PRODUCT DATA

| PROPERTY | TEST METHOD | VALUE |
|--|----------------|---------|
| R-VALUE @ 1" | ASTM C 518 | 7.5 |
| R-VALUE @ 3.5" | ASTM C 518 | 24 |
| CORE DENSITY (PCF) | ASTM D 1622 | 1.9 |
| OPEN-CELL CONTENT % | ASTM D 6226 | <5 |
| DIMENSIONAL STABILITY % | ASTM D 2126 | <7.66 |
| TENSILE STRENGTH (PSI) | ASTM D 1623 | 46.9 |
| COMPRESSIVE STRENGTH (PSI) | ASTM D 1621 | 32.2 |
| SHEAR PROPERTIES OF SANDWICH CORE MATERIALS (LBF/IN ²) | ASTM C 273 | 40.67 |
| SURFACE BURNING CHARACTERISTICS | ASTM E 84 | Class-1 |
| RE-ENTRY PERIOD W/10 ACH | ASTM D8445-22A | 1 Hour |
| RE-OCCUPANCY PERIOD W/10 ACH | ASTM D8445-22A | 2 Hours |
| VISCOSITY-ISO AT 77F (CP) | | 200 |

BURN CHARACTERISTICS

| PROPERTY | TEST METHOD | VALUE |
|--------------------|-------------|-------|
| FLAME SPREAD INDEX | ASTM E 84 | ≤ 25 |
| SMOKE DEVELOPMENT | ASTM E 84 | ≤ 450 |

THERMAL BARRIER NFPA286

| TYPE | WFT | WALL | CEILING |
|----------------------|------------|--------------|--------------|
| DC315 | 14 MIL MIN | 7.5 INCH MAX | 9.5 INCH MAX |
| FLAME CONTROL 60-60A | 14 MIL MIN | 7.5 INCH MAX | 9.5 INCH MAX |
| NO BURN XD/PLUS THB | 14 MIL MIN | | |

IGNITION BARRIER AC377X

Complies with the applicable requirements of AC377 Appendix X for use in attics and crawl spaces without a prescriptive ignition barrier

TEMPERATURE GRADES

| REACTIVITIES AVAILABLE | AMBIENT TEMPERATURE RANGE |
|------------------------|---------------------------|
| SUMMER + | > 95°F |
| SUMMER | 70°F – 95°F |
| REGULAR | 50°F – 70°F |
| WINTER | 30°F – 50°F |

APPLICATION PARAMETERS

| | |
|-------------------------------|--------------------|
| STORAGE TEMPERATURE | 60° – 80° |
| AMBIENT TEMPERATURE | 20° – 120° |
| SUBSTRATE TEMPERATURE | 30° – 120° |
| MOISTURE CONTENT OF SUBSTRATE | Less than 19% |
| MAXIMUM LIFT PER PASS | Not to exceed 3.5" |

EQUIPMENT SETTINGS

| | |
|-----------------------------------|--|
| PRE-HEATER: (A) COMPONENT – ISO | 110° – 130° |
| PRE-HEATER: (B) COMPONENT – RESIN | 110° – 130° |
| HOSE HEAT | 110° – 130° |
| FLUID PRESSURE – DYNAMIC | 1100 – 1400 psi |
| MIXING RATIO | 1:1 by Volume |
| RECOMMENDED MIX CHAMBER SIZE | 10-15 lbs./minute (i.e. 01-Graco AR4242) |
| SHELF LIFE | 6 Months |

**The values represented in the Equipment Settings chart provides initial optimum settings. Actual operating ranges will vary as ambient air; humidity, moisture, and substrate temperatures vary. Extreme conditions will affect the yield, adhesion and cured physical properties of the foam. Applicator must make adjustments as conditions vary.*

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SECTION 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

PRODUCT FORM: MIXTURE

PRODUCT NAME: ACCUFOAM CC-HFO, ACCUFOAM CC-HFO WINTER, ACCUFOAM CC-HFO REGULAR, ACCUFOAM CC-HFO SUMMER, ACCUFOAM CC-HFO SUMMER PLUS

PRODUCT CODE: CCW-HFO

SYNONYMS: WALL, POLYURETHANE, AND FOAM

1.2 INTENDED USE OF THE PRODUCT

Use of the Substance/Mixture: Spray foam insulation for commercial and residential use.

1.3 NAME, ADDRESS, AND TELEPHONE OF THE RESPONSIBLE PARTY COMPANY

Creative Polymer Solutions, LLC.
2720 Southeastern Circle, Birmingham, AL 35215
205-440-4996
www.accufoam.com

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Number: Within USA and Canada: 1-800-424-9300 or +1-703-527-3887 (collect calls accepted) CHEMTREC

SECTION 2: HAZARDS IDENTIFICATION

2.1 CLASSIFICATION OF THE SUBSTANCE OR MIXTURE


GHS-US Classification

| | |
|---|------|
| Skin corrosion/irritation Category 2 | H315 |
| Serious eye damage/eye irritation Category 2 | H319 |
| Reproductive toxicity Category 2 | H361 |
| Specific target organ toxicity (repeated exposure(oral)) Category 2 | H373 |

Full text of hazard classes and H-statements: see section 16

2.2 LABEL ELEMENTS

GHS-US Labeling

| | |
|-----------------------------------|--|
| HAZARD PICTOGRAMS (GHS-US) |  |
| SIGNAL WORD (GHS-US) | Danger |
| HAZARD STATEMENTS (GHS-US) | H302 - Harmful if swallowed. H314 Causes severe skin burns and eye damage. H318 - Causes serious eye damage H373 - May cause damage to organs (kidneys) through prolonged or repeated exposure (oral route of exposure) |

PRECAUTIONARY STATEMENTS (GHS-US)

P301+P330+P331 - IF SWALLOWED: Rinse mouth. Do not induce vomiting.

P302+P361+P354 - IF ON SKIN: Take off immediately all contaminated clothing, immediately rinse with water for several minutes.

P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P305 + P354 + P338 IF IN EYES: Immediately rinse with water for several minutes. Remove contact

lenses, if present and easy to do. Continue rinsing.

P316 Get emergency medical help immediately.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of content and/or container in accordance with local, regional, national, and/or international regulations.

2.3 OTHER HAZARDS

Exposure may aggravate pre-existing eye, skin, or respiratory conditions.

2.4 UNKNOWN ACUTE TOXICITY (GHS-US)

No Available Data

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 SUBSTANCE

Not Applicable

3.2 MIXTURE

| CHEMICAL NAME | CAS NUMBER | % |
|--|---|-------|
| Proprietary Polyester Resin (75-95%) 2,2'-oxybisethanol; diethylene glycol | Proprietary Polyester Resin 111-46-6 | 35-45 |
| Polyether polyol (65-85%) Polyether Polyol (15-45%) | 9049-71-2 25791-96-2 | 10-20 |
| Oxirane, 2-methyl-, polymer with oxirane ether with 2,6-bis[[bis-(2-hydroxyethyl)amino]methyl]-4- branched nonylphenol | 940912-28-7 34354-45-5 | 10-20 |
| Tris(1-chloro-2-propyl) phosphate | 13674-84-5 | 2-12 |
| 2-Dimethylaminoethanol | 108-01-0 | 1-10 |
| Ethane-1,2-diol, 1,1,3,3-Tetramethylguanidine, Succinic acid, Glutaric acid | 107-21-1 80-70-6 110-15-6 110-94-1 | 2-12 |
| Triethyl phosphate | 78-40-0 | 1-10 |
| Tertiary amine catalyst (>25%), ethylene glycol (>25%) | Not Available 107-21-1 | 0-10 |

Full text of H-phrases: see section 16

*The exact percentage of composition has been withheld as a trade secret [29 CFR 1910.1200].

SECTION 4: FIRST AID MEASURES

4.1 DESCRIPTION OF FIRST AID MEASURES

First-aid measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Remove contaminated clothing. Immediately drench affected area with water for at least 15 minutes. If exposed or concerned: Get medical advice/attention.

First-aid Measures After Eye Contact: Immediately rinse with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS BOTH ACUTE AND DELAYED

Symptoms/Injuries: May cause damage to organs through prolonged or repeated exposure. Suspected of damaging fertility or the unborn child. Causes skin irritation. Suspected of causing cancer. Causes serious eye damage.

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs(kidneys) through prolonged or repeated exposure(oral).

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Water spray, fog, carbon dioxide (CO₂), alcohol-resistant foam, or dry chemical.

Unsuitable Extinguishing Media: Do not use a heavy water stream. Use of heavy stream of water may spread fire.

5.2 SPECIAL HAZARDS ARISING FROM THE SUBSTANCE OR MIXTURE

Fire Hazard: Not considered flammable but may burn at high temperatures.

Explosion Hazard: Product is not explosive.

Reactivity: Hazardous reactions will not occur under normal conditions.

5.3 ADVICE FOR FIREFIGHTERS

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Nitrogen oxides. Phosphorous oxide.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray.

6.1.1 FOR NON-EMERGENCY PERSONNEL

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2 FOR EMERGENCY PERSONNEL

Protective Equipment:

Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the

area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2 ENVIRONMENTAL PRECAUTIONS

Prevent entry to sewers and public waters. Avoid release to the environment.

6.3 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING UP

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill.

6.4 REFERENCE TO OTHER SECTIONS

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Precautions for Safe Handling: Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Do NOT breathe (dust, vapor, mist, gas). Avoid contact with skin, eyes and clothing.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Keep/Store away from direct sunlight, extremely high or low temperatures and incompatible materials. Store locked up/in a secure area.

Incompatible Materials: Strong acids, strong bases, strong oxidizers. reactive metals (Al, K, Zn ...). Isocyanates.

7.3 SPECIFIC END USE(S)

Closed cell insulation, for professional use only.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

| (E)-1-CHLORO-3,3,3-TRIFLUOROPROP-1-ENE (102687-65-0) | | |
|--|----------------|--|
| USA AIHA | WEEL TWA [ppm] | 800 ppm (trans-1-Chloro-3,3,3-trifluoro-propylene) |
| TRIETHYL PHOSPHATE (78-40-0) | | |
| USA AIHA | WEEL TWA | 7.45 mg/m ³ |

| ETHYLENE GLYCOL (107-21-1) | | |
|------------------------------|-------------------------|---|
| USA ACGIH | ACGIH OEL TWA [ppm] | 25 ppm (vapor fraction) |
| USA ACGIH | ACGIH OEL STEL | 10 mg/m ³ (inhalable particulate matter, aerosol only) |
| USA ACGIH | ACGIH OEL STEL [ppm] | 50 ppm (vapor fraction) |
| USA ACGIH | ACGIH chemical category | Not Classifiable as a Human Carcinogen |
| DIETHYLENE GLYCOL (111-46-6) | | |
| USA AIHA | WEEL TWA | 10 mg/m ³ |

8.2 EXPOSURE CONTROLS

Appropriate Engineering Controls: Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment: Gloves. Protective clothing. Protective goggles. Insufficient ventilation: wear respiratory protection.



Materials for Protective Clothing: Chemically resistant materials and fabrics.

Hand Protection: Wear protective gloves.

Eye and Face Protection: Chemical safety goggles.

Skin and Body Protection: Wear suitable protective clothing.

Respiratory Protection: If exposure limits are exceeded or irritation is experienced, approved respiratory protection should be worn. In case of inadequate ventilation, oxygen-deficient atmosphere, or where exposure levels are not known wear approved respiratory protection.

Other Information: When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------|---------------------|
| Physical State | Liquid |
| Appearance | Light brown resin |
| Odor | Slight amine |
| Odor Threshold | No Data Available |
| pH | 9 – 10 |
| Relative Density | 1.1 – 1.2 (Water=1) |
| Viscosity (cPs) | 600 – 800 |
| Flash Point (F) | 137.3 |

9.2 OTHER INFORMATION

No Additional Information available

SECTION 10: STABILITY AND REACTIVITY

10.1 REACTIVITY:

Hazardous reactions will not occur under normal conditions.

10.2 CHEMICAL STABILITY:

Stable under recommended handling and storage conditions (see section 7).

10.3 POSSIBILITY OF HAZARDOUS REACTIONS:

Hazardous polymerization will not occur.

10.4 CONDITIONS TO AVOID:

Direct sunlight, extremely high or low temperatures, and incompatible materials.

10.5 INCOMPATIBLE MATERIALS:

Strong acids, strong bases, strong oxidizers.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS:

Not expected to decompose under ambient conditions.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Acute Toxicity (Oral): Not classified

Acute Toxicity (Dermal): Not classified

Acute Toxicity (Inhalation): Not classified

| (E)-1-Chloro-3,3,3-trifluoroprop-1-ene (102687-65-0) | |
|--|--|
| LC50 Inhalation Rat | 120000 ppm/4h |
| 2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5) | |
| LD50 Oral Rat | 1500 mg/kg |
| LD50 Dermal Rabbit | > 5000 mg/kg |
| LC50 Inhalation Rat | > 5.05 mg/l/4h |
| Triethyl phosphate (78-40-0) | |
| LD50 Oral Rat | 1100 – 1600 mg/kg |
| LD50 Dermal Rabbit | > 20 g/kg |
| LC50 Inhalation Rat | > 8817 mg/m ³ (Exposure time: 4 h) |
| Glutaric acid (110-94-1) | |
| LD50 Oral Rat | 2750 mg/kg |
| LD50 Dermal Rabbit | > 10000 mg/kg |
| Butanedioic acid (110-15-6) | |
| LD50 Oral Rat | > 2000 mg/kg |
| LD50 Dermal Rat | > 2000 mg/kg |
| LC50 Inhalation Rat | > 1.284 mg/l/4h (Read across: Fumaric Acid, no deaths at maximum technically feasible concentration) |
| Guanidine, N,N,N',N'-tetramethyl- (80-70-6) | |
| LD50 Oral Rat | 835 mg/kg |
| Ethylene glycol (107-21-1) | |
| LD50 Dermal Rat | 10600 mg/kg |
| Diethylene glycol (111-46-6) | |
| LD50 Oral Rat | 1120 mg/kg |
| LD50 Dermal Rabbit | 11890 mg/kg |

| | |
|---------------------|---|
| LC50 Inhalation Rat | > 4600 mg/m ³ (Exposure time: 4 h) |
|---------------------|---|

Skin Corrosion/Irritation: Causes skin irritation.

pH: 10 – 12

Serious Eye Damage/Irritation: Causes serious eye irritation.

pH: 10 – 12

Respiratory or Skin Sensitization: Not classified

Germ Cell Mutagenicity: Not classified

Carcinogenicity: Not classified

Reproductive Toxicity: Suspected of damaging fertility or the unborn child.

Specific Target Organ Toxicity (Single Exposure): Not classified

Specific Target Organ Toxicity (Repeated exposure(oral)): May cause damage to organs(kidneys) through prolonged or repeated exposure(oral).

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Prolonged exposure may cause irritation.

Symptoms/Injuries After Skin Contact: Redness, pain, swelling, itching, burning, dryness, and dermatitis.

Symptoms/Injuries After Eye Contact: Contact causes severe irritation with redness and swelling of the conjunctiva.

Symptoms/Injuries After Ingestion: Ingestion may cause adverse effects.

Chronic Symptoms: Suspected of damaging fertility or the unborn child. May cause damage to organs(kidneys) through prolonged or repeated exposure(oral).

SECTION 12: ECOLOGICAL INFORMATION

12.1 TOXICITY

Ecology-General: Not classified.

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|----------------------|--|
| LC50 Fish 1 | 56.2 mg/l (Exposure time: 96 h - Species: Brachydanio rerio (static)) |
| EC50 - Crustacea [1] | 63 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 98 mg/l (Exposure time: 96 h - Species: Pimephales promelas (static)) |
| ErC50 (Algae) | 82 mg/l (Exposure time: 72 h - Species: Pseudokirchneriella subcapitata) |
| NOEC Chronic Algae | 6 mg/l |

BUTANEDIOIC ACID (110-15-6)

| | |
|-------------|---|
| LC50 Fish 1 | > 100 mg/l (Exposure time: 96 h - Species: Danio rerio (semi-static)) |
|-------------|---|

ETHYLENE GLYCOL (107-21-1)

| | |
|------------------------|--|
| LC50 Fish 1 | 41000 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss) |
| EC50 - Crustacea [1] | 46300 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
| LC50 Fish 2 | 14 – 18 ml/l (Exposure time: 96 h - Species: Oncorhynchus mykiss (static)) |
| NOEC Chronic Crustacea | 4.2 mg/l |

DIETHYLENE GLYCOL (111-46-6)

| | |
|-------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas (flow-through)) |
|-------------|--|

| | |
|----------------------|---|
| EC50 - Crustacea [1] | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |
|----------------------|---|

DIETHYLENE GLYCOL (111-46-6)

| | |
|----------------------|--|
| LC50 Fish 1 | 75200 mg/l (Exposure time: 96 h - Species: Pimephales promelas (flow-through)) |
| EC50 - Crustacea [1] | 84000 mg/l (Exposure time: 48 h - Species: Daphnia magna) |

12.2 PERSISTENCE AND DEGRADABILITY

| | |
|---------------------------|-----------------|
| Accufoam CC-HFO | |
| Bioaccumulative Potential | Not established |

12.3 BIOACCUMULATIVE POTENTIAL

| | |
|-------------------------------|------------------|
| Accufoam CC-HFO | |
| Persistence and Degradability | Not established. |

2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5)

| | |
|---|-----------|
| BCF Fish 1 | 1.9 – 4.6 |
| Partition coefficient n-octanol/water (Log Pow) | 2.59 |

Triethyl phosphate (78-40-0)

| | |
|---|------------|
| Partition coefficient n-octanol/water (Log Pow) | 0.8 - 1.11 |
|---|------------|

ETHYLENE GLYCOL (107-21-1)

| | |
|---|-------|
| Partition coefficient n-octanol/water (Log Pow) | -1.93 |
|---|-------|

DIETHYLENE GLYCOL (111-46-6)

| | |
|---|------------------|
| BCF Fish 1 | 100 – 180 |
| Partition coefficient n-octanol/water (Log Pow) | -1.98 (at 25 °C) |

12.4 MOBILITY IN SOIL

No additional information available

12.5 OTHER ADVERSE EFFECTS

Other Information: Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology- Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1 IN ACCORDANCE WITH DOT

Not regulate except in bulk. Bulk containers (>5,000 lbs) must be transported as:

UN3083, ENVIRONMENTALLY HAZARDOUS SUBSTANCES, N.O.S. (CONTAINS 1,4-DIOXANE), 9, PG III

14.2 IN ACCORDANCE WITH IMDG

Not regulated for transport

14.3 IN ACCORDANCE WITH IATA

Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1 US FEDERAL REGULATIONS

Accufoam CC-HFO

| | |
|---|---|
| SARA Section 311/312 Hazard Classes | Health hazard - Reproductive toxicity Health hazard - Specific target organ toxicity (single or repeated exposure(oral)) Health hazard - Skin corrosion or Irritation Health hazard - Serious eye damage or eye irritation |
| (E)-1-Chloro-3,3,3-trifluoroprop-1-ene (102687-65-0) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| EPA TSCA Regulatory Flag | PMN - PMN - indicates a commenced PMN substance. |
| 2-Propanol, 1-chloro-, phosphate (3:1) (13674-84-5) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| Triethyl phosphate (78-40-0) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| Glutaric acid (110-94-1) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| Butanedioic acid (110-15-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| Guanidine, N,N,N',N'-tetramethyl- (80-70-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| Ethylene glycol (107-21-1) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active Subject to reporting requirements of United States SARA Section 313 | |
| CERCLA RQ | 5000 lb |
| SARA Section 313 - Emission Reporting | 1 % |
| Siloxanes and silicones, dimethyl, 3-hydroxypropyl methyl, ethoxylated (68937-54-2) | |

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

SDS US (GHS HazCom)

| | |
|--|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| EPA TSCA Regulatory Flag | XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711). |
| Ethylene oxide, polymer with 2,2'-iminodiethanol and propylene oxide (34354-45-5) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |
| EPA TSCA Regulatory Flag | XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711). |
| Diethylene glycol (111-46-6) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory - Status: Active | |

15.2. US STATE REGULATIONS

| | |
|--|--|
| Ethylene glycol (107-21-1) | |
| U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List | |
| Diethylene glycol (111-46-6) | |
| U.S. - Pennsylvania - RTK (Right to Know) List | |

California Proposition 65

WARNING: This product can expose you to Ethylene glycol, which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

| Chemical Name (CAS No.) | Carcinogenicity | Developmental Toxicity | Female Reproductive Toxicity | Male Reproductive Toxicity |
|----------------------------|-----------------|------------------------|------------------------------|----------------------------|
| Ethylene glycol (107-21-1) | | X | | |

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

DATE OF PREPARATION OR LATEST REVISION: 07/06/2022

OTHER INFORMATION: This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases

| | |
|------|--|
| H226 | Flammable liquid and vapor |
| H280 | Contains gas under pressure; may explode if heated |
| H302 | Harmful if swallowed |
| H314 | Causes severe skin burns and eye damage |
| H315 | Causes skin irritation |
| H318 | Causes serious eye damage |
| H319 | Causes serious eye irritation |
| H320 | Causes eye irritation |
| H361 | Suspected of damaging fertility or the unborn child |
| H373 | May cause damage to organs(kidneys) through prolonged or repeated exposure(oral) |
| H402 | Harmful to aquatic life |



BARNHARDT MANUFACTURING INC.
DBA - NCFI POLYURETHANES
P.O. Box 1528
Mount Airy, NC 27030
800-346-8229
www.ncfi.com

**INSULSTAR® SMARTSPF™,
 INSULBLOC® SMARTSPF™ AND
 INSULSTAR® 1.7 SMARTSPF™ SPRAY
 POLYURETHANE FOAM INSULATION
 SYSTEMS**

CSI Section:
07 21 19 Foamed-in-Place Insulation

1.0 RECOGNITION

InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ Spray Polyurethane Foam Insulation Systems as described in this report have been evaluated for use as thermal insulation. The physical properties, thermal resistance, surface burning characteristics, air permeability, water resistance, fire-resistance rating, attic and crawl space installations and application in Type V construction, and in exterior walls of Types I-IV construction. The products were evaluated for compliance with the following codes:

- 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2021, 2018, 2015, and 2012 International Residential Code® (IRC)
- 2021, 2018, 2015, and 2012 International Energy Conservation Code® (IECC)

2.0 LIMITATIONS

Use of the InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ Spray Polyurethane Foam Insulation Systems described in this report is subject to the following limitations:

2.1 The insulation shall be installed in accordance with the manufacturer’s published installation instructions, this evaluation report, and the applicable code. If there are any conflicts between the manufacturer’s published installation instructions and this report, the more restrictive shall govern.

2.2 In accordance with Sections 4.6.2 and 4.6.3 of this report, the insulation shall be separated from the interior of the building by a code-complying thermal barrier or ignition barrier as appropriate.

2.3 The insulation shall not exceed the nominal density and thickness for the installation conditions described in this report.

2.4 The insulation shall be installed by professional spray polyurethane foam installers approved by NCFI Polyurethanes or by the Spray Polyurethane Foam Alliance.

2.5 Use of the insulation in areas of “very heavy” termite infestation probability shall be in accordance with 2021, 2018, and 2015 IBC Section 2603.8, 2012 IBC Section 2603.9, or IRC Section R318.4, as applicable.

2.6 Labeling and job site certification of the insulation and coatings shall comply with the following code sections as applicable:

- 2021,2018, 2015, or 2012 IBC Section 2603.2
- 2018, 2015, or 2012IRC Section R316.2
- 2021, 2018 or 2015 IRC Section N1101.10.1.1
- 2012 IRC Section N1101.12.1.1
- 2021, 2018, 2015, or 2012 IECC Sections C303.1.1.1 or R303.1.1.1

2.7 InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ are produced by NCFI Polyurethanes in Mount Airy, North Carolina, and Missouri City, Texas.

3.0 PRODUCT USE

3.1 Thermal Insulation. InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ are non-structural, closed-cell, spray-applied, polyurethane foam plastic insulation complying with IBC Section 2603, IRC Section R316, and IECC Sections C303, C402, R303, and R402. When installed in accordance with Section 4.0 of this report, the foam plastic insulation may be used in wall cavities, floor assemblies, or ceiling assemblies, and in attics and crawl spaces as nonstructural thermal insulation material. InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ insulation are used in Type V construction under the IBC and in one- and two-family dwellings under the IRC. InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ insulation may also be used in Types I, II, III, or IV construction when installed in accordance with Section 4.7 of this report.

3.2 Dampproofing and Waterproofing. The InsulStar®SmartSPF™ and InsulBloc®SmartSPF™ insulations may be installed on the exterior side of the foundation walls and the underside of on-grade slabs. The InsulStar®SmartSPF™, or InsulBloc®SmartSPF™ may be used as waterproofing as required in IBC Section 1805.2.2 or 1805.3.2 and IRC Section R406.1 or R406.2 when installed as described in UES ER-340.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.





4.0 PRODUCT DESCRIPTION

4.1 General: InsulStar®SmartSPF™, InsulBloc®-SmartSPF™, and InsulStar®1.7SmartSPF™ are two-component, spray-applied, closed-cell, polyurethane foam plastic insulations. InsulStar®SmartSPF™ and InsulBloc®SmartSPF™ have a nominal core density of 2.0 lb/ft³ (32 kg/m³) and InsulStar®1.7 SmartSPF™ has a nominal core density of 1.7 lb/ft³ (27 kg/m³). The foam plastic insulation is generated by combining the isocyanate (NCFI A2-000 series A-component) and a polymeric resin (InsulStar®SmartSPF™, InsulBloc® SmartSPF™, and InsulStar®1.7 SmartSPF™ series B-component) through a dual component, volumetric, positive-displacement proportioner, on-site, in a one-to-one volumetric ratio as specified in the manufacturer's installation instructions.

All materials recognized in this report shall be stored in their original containers which shall be kept out of direct sunlight and away from heat and moisture. When stored unopened and indoors at a temperature between 50°F (10°C) and 80°F (27°C), the shelf life for InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ is 6 months.

4.2 Thermal Resistance (R-Values): Spray-applied polyurethane foam plastic insulation has thermal resistance (R-Value) at a mean temperature of 75°F (24°C) as shown in Table 1 of this report.

| Thickness ² (Inch) | R-Value (°F•ft ² •hr/Btu) |
|-------------------------------|--------------------------------------|
| 1.0 | 7.1 |
| 2.0 | 14 |
| 3.0 | 20 |
| 3.5 | 23 |
| 4.0 | 27 |
| 4.5 | 30 |
| 5.5 | 37 |
| 6.0 | 40 |
| 7.0 | 47 |
| 8.0 | 53 |
| 9.0 | 60 |

¹R-values are calculated based on the k-factor test results at 1- and 3.5-inch thicknesses and rounded to the nearest whole number.

²1 inch = 25.4 mm; and 1°F•ft²•hr/Btu = 0.176110 K•m²•hr/W.

4.3 Surface Burning Characteristics: At a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 lb/ft³ (32.0 kg/m³), the InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ spray-applied polyurethane foam plastic insulation has a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84. Greater thicknesses, depending on the end-use, are recognized as noted in Section 4.6 of this report.

4.4 Water Vapor Resistance: InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ has a vapor permeance of less than 1 perm (57 ng/Pa-s-m²) at a thickness of 1.7 inches (43 mm) when tested per ASTM E96 Procedure A and qualifies as a Class II vapor retarder as defined in IBC Section 202 or IRC Section R202.

4.5 Air Permeability: InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ when tested per ASTM E2178 at a thickness of 0.5 inches (12.7 mm) and a pressure differential of 75 Pa qualifies per 2021, 2018 and 2015 IBC Section 202 or IRC Section R202 as an air-impermeable insulation for use in unvented attics and cathedral ceilings.

4.6 Installation

4.6.1 General: InsulStar®SmartSPF™, InsulBloc®-SmartSPF™, and InsulStar®1.7SmartSPF™ shall not be applied to areas where the maximum service temperature is greater than 180°F (82°C). InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ shall be applied to substrates that are clean, dry, and free from frost, ice, loose debris, or contaminants that will interfere with the adhesion of the spray foam insulation. The foam shall not be applied in electrical outlets, in junction boxes, to substrates over 120°F (49°C), or indirect contact with water. InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ may be applied in passes of uniform thickness from a minimum of ½ inch (12.7 mm) to a maximum of 4 inches (101 mm) per pass. The maximum total thickness shall be as specified in Sections 4.6.2, 4.6.3, and 4.7 of this report, as applicable.

4.6.2 Thermal Barrier

4.6.2.1 General: InsulStar®SmartSPF™, InsulBloc®-SmartSPF™, and InsulStar®1.7SmartSPF™ shall be separated from the interior of the building with a thermal barrier except as specifically excluded by the applicable code.

4.6.2.2 Application with a Prescriptive Thermal Barrier: InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ may be installed to any thickness in ceiling cavities, floor cavities, and in-wall cavities when separated from the interior of the building by a prescriptive thermal barrier (minimum 1/2-inch-thick [12.7 mm] gypsum board or other material tested in accordance with NFPA 275). The gypsum board shall be installed in accordance with the applicable provisions of IBC Section 2508 or IRC Section R702.3 in such a manner that the foam plastic is not exposed.

4.6.2.3 Alternative Thermal Barrier Assemblies: When InsulStar® SmartSPF™, InsulBloc®SmartSPF™, or InsulStar®1.7SmartSPF™ is coated in compliance with paragraphs 4.6.2.3.1, 4.6.2.3.3, 4.6.2.3.5, 4.6.2.3.6 or 4.6.2.3.8, it may be installed without a prescriptive thermal barrier.



4.6.2.3.1 DC315 Intumescent Coating Application: When the foam insulation is coated with DC315 as stipulated within this section, the prescriptive thermal barrier is not required. The thickness of the foam plastic on vertical wall surfaces is limited to a maximum of 5.5 inches (140 mm). The thickness on the underside of roof sheathing is limited to a maximum of 9.5 inches (241 mm). The foam shall be covered on all exposed surfaces with a minimum of 14 mils wet film thickness (9 dry mils) of DC315. The DC315 coverage rate is 115 square feet per gallon.

4.6.2.3.2 DC315 Fire Protective Coating: DC315 Intumescent Coating, recognized in IAPMO UES [ER-499](#), is a water-based, latex, intumescent coating manufactured by International Fireproof Technology, Inc. and is supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums.

4.6.2.3.3 Staycell ONE STEP®502 Application: When the foam insulation is coated with Staycell ONE STEP®502 as noted in this section, the prescriptive thermal barrier is not required. The foam plastic insulation is limited to a maximum thickness of 3 inches (76 mm) on vertical wall surfaces with the Staycell ONE STEP®502 applied over the foam at a minimum thickness of 1 inch (25.4 mm). The total thickness of the two materials is restricted to a maximum thickness of 4 inches (102 mm) on vertical surfaces. The foam plastic insulation applied to horizontal ceiling/roof assemblies is limited to a maximum thickness of 8 inches (204 mm) with the Staycell ONE STEP®502 applied over the foam at a minimum of 0.5-inch (12.7 mm) thickness. The total thickness of the two materials is restricted to a total thickness of 8½ inches (216 mm) on horizontal surfaces. The Staycell ONE STEP®502 may only be used in lieu of a prescriptive thermal barrier when applied in only one plane of the building assembly, the vertical or the horizontal building assembly.

4.6.2.3.4 Staycell ONE STEP®502: Staycell ONE STEP®502 is two parts, closed-cell intumescent spray-applied polyurethane foam covering recognized in Quality Auditing Institute (QAI) Listing B-1020-1 and has a nominal in-place density of 2.0 lb./ft³ (32 kg/m³). Staycell ONE STEP®502 is manufactured by Preferred Solutions, Inc. Parts A and B are supplied in 55-gallon (208L) drums. When Staycell ONE STEP®502 components are stored in factory-sealed containers at temperatures between 50°F and 75°F (10°C and 24°C), the shelf life is six months. Staycell ONE STEP® 502 has a Flame Spread Index of 25 or less and a Smoke Developed Index of 450 or less when tested at four inches in accordance with ASTM E84. The potential heat of Staycell ONE STEP®502 is 1881 BTU/ft² per inch of thickness when tested in accordance with NFPA 259.

4.6.2.3.5 AZZ Enclosure Systems: The AZZ metal modular equipment structure constructed with a maximum of 3-inch-thick (76 mm) walls and 6-inch-thick (152 mm) ceiling cavities, with each cavity covered on the interior and exterior by No. 16 gauge steel [approximately 1/16-inch (1.6 mm)] and ¼-inch (6.4 mm) steel plate flooring is approved for up to full

cavity thickness, maximum 3 inches (76 mm) of InsulStar®SmartSPF™, InsulBloc®SmartSPF™, or InsulStar®1.7SmartSPF™ insulation in the wall, and up to 5-inches (127 mm) maximum in the ceiling and underfloor cavities. No additional thermal barrier is required over the foam in the walls, ceiling, or floor.

4.6.2.3.6 No-Burn® Plus ThB Intumescent Coating Application: When the foam insulation is coated with Plus ThB as stipulated within this section, the prescriptive thermal barrier is not required. The thickness of the foam plastic on vertical wall surfaces is limited to a maximum of 6.5 inches (165 mm). The thickness on the underside of roof sheathing is limited to a maximum of 9.5 inches (241 mm). The foam shall be covered on all exposed surfaces with a minimum of 14 mils wet film thickness (9 dry mils) of Plus ThB. The Plus ThB coverage rate is 115 square feet per gallon.

4.6.2.3.7 Plus ThB Intumescent Coating: Plus ThB coating, recognized in IAPMO UES ER-305, is a water-based latex, intumescent coating manufactured by No-Burn Inc. and is supplied in 5-gallon pails and 55-gallon drums.

4.6.2.3.8 Flame Control 60-60A Intumescent Coating Application: When the foam insulation is coated with 60-60A as stipulated within this section, the prescriptive thermal barrier is not required. The thickness of the foam plastic on vertical wall surfaces is limited to a maximum of 8 inches (203 mm). The thickness on the underside of roof sheathing is limited to a maximum of 12 inches (304 mm). The foam shall be covered on all exposed surfaces with a minimum of 14 mils wet film thickness of 60-60A coating. The 60-60A coverage rate is 115 square feet per gallon.

4.6.2.3.9 60-60A Intumescent Coating: 60-60A coating, recognized in IAPMO UES ER-596, is a water-based latex, intumescent coating manufactured by Flame Control Coatings and is supplied in 5-gallon pails and 55-gallon drums.

4.6.3 Installation in Attics or Crawl Spaces

4.6.3.1 General: When installing InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ in attics and/or crawl spaces and a thermal barrier is omitted in accordance with IBC Section 2603.4.1.6, IRC Sections R316.5.3 or R316.5.4, installation shall comply with either Section 4.6.3.3 or 4.6.3.4 of this report.

4.6.3.2 Unvented Attics: InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7SmartSPF™ qualify as air-impermeable insulations and, when installed in accordance with Section 4.6.3.3 or 4.6.3.4 of this report, may be used to insulate unvented attics and unvented enclosed roof framing assemblies in accordance with 2021 and 2018 IBC Section 1202.3 (2015 Section 1203.3) or IRC Section R806.5 (2012 IRC Section R806.4).



4.6.3.3 Application with a Prescriptive Ignition Barrier:

When InsulStar®SmartSPF™, InsulBloc®SmartSPF™, or InsulStar®1.7SmartSPF™ is installed within attics and crawl spaces where entry is made only to service utilities, the insulation shall be protected by an ignition barrier in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4 as applicable. The ignition barrier shall be consistent with the construction type of the building. The ignition barrier shall be installed in accordance with the provisions applicable to the material referenced in the IBC or IRC in such a manner that the foam plastic is not exposed.

4.6.3.4 Alternative Ignition Barrier Assemblies: When InsulStar®SmartSPF™, InsulBloc®SmartSPF™, or InsulStar®1.7SmartSPF™ insulation is installed without a prescriptive ignition barrier the following conditions apply:

- a) Entry to the attic or crawl space is only to service utilities, and no storage is permitted.
- b) Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when an air-impermeable insulation is permitted in unvented attics in accordance with 2021 and 2018 IBC Section 1202.3 (2015 IBC Section 1203.3) or IRC Section R806.5. Under-floor (crawl space) ventilation is provided when required by 2021 and 2018 IBC Section 1202.4 (2015 IBC Section 1203.4 and 2012 IBC Section 1203.3) or IRC Section R408 as applicable.
- c) The foam plastic insulation is limited to the maximum thickness and density stated in section 4.6.3.4.1 of this report.
- d) Combustion air is provided in accordance with the Uniform Mechanical Code (UMC) Section 701.1 or International Mechanical Code (IMC) Section 701 as applicable.
- e) Attic and crawl spaces do not have interconnected areas.
- f) Air in the attic or crawl space is not circulated to other parts of the building.

4.6.3.4.1 Attic and Crawl Space Overhead and Vertical Surfaces without an Ignition Barrier:

InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ may be installed without an ignition barrier, coating or covering when installed as prescribed in this section. It may be spray-applied in attics to the underside of roof sheathing, roof rafters, vertical surfaces, and in crawl spaces to the underside of floors and vertical surfaces. When applied to the underside of the top of the space, the thickness of the insulation shall not exceed 10 inches (254 mm) and when applied to vertical surfaces, the maximum thickness shall not exceed 8 inches (203 mm).

4.7 Exterior Walls of Types I, II, III, and IV Construction (IBC)

4.7.1 General: When used on exterior walls of Type I, II, III, and IV construction, InsulStar®SmartSPF™,

InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ shall comply with Section 2603.5 of the IBC and Section 4.7.2 of this report and may be installed at a maximum thickness of 4 inches (102 mm). The potential heat of InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ is 1834 BTU/ft² (17.1 MJ/m²) per inch of thickness when tested in accordance with NFPA 259.

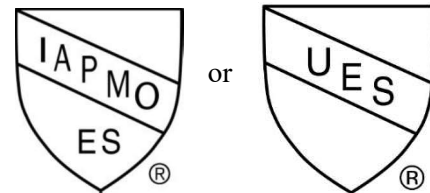
4.7.2 Specific Wall Assemblies: Wall assemblies shall be constructed as described in Tables 2 or 3 of this report.

5.0 IDENTIFICATION

Job site labeling and certification of the insulation shall comply with IBC Section 2603.2, IRC Section 1101.10.1 (2012 IRC Section 1101.12.1), and IECC Sections C303.1.1 and R303.1.1 as applicable. The B-component for the InsulStar®SmartSPF™, InsulBloc®SmartSPF™, and InsulStar®1.7 SmartSPF™ is identified with the following:

- Manufacturer's name, address, and telephone number
- Product trade name
- Flame spread and smoke-developed indices
- Evaluation report number and the name of the inspection agency

Either IAPMO Uniform Evaluation Service Mark of Conformity may also be used as shown below:



IAPMO UES ER-667

6.0 SUBSTANTIATING DATA

6.1 Data in accordance with IAPMO/ANSI ES1000-2020, Standard for Building Code Compliance of Spray-Applied Polyurethane Foam.

6.2 Reports of room corner fire testing in accordance with NFPA 286.

6.3 Reports on air leakage tests in accordance with ASTM E2178.

6.4 Reports on flame spread index and smoke-developed index in accordance with ASTM E84.

6.5 Engineering analysis to define various NFPA 285 Complying Wall Constructions.

6.6 Reports on Potential Heat tests in accordance with NFPA 259.



Originally Issued: 05/10/2019

Revised: 04/25/2023

Valid Through: 05/31/2024

6.7 Reports of testing in accordance with AC377 Appendix X.

6.8 Report on AZZ Enclosure System tested per NFPA 286.

6.9 Priest & Associates Engineering Evaluation of AZZ's Enclosure System tested per NFPA 286.

6.10 Reports on water vapor transmission tests in accordance with ASTM E96.

6.11 Data in accordance with ICC-ES Acceptance Criteria for Spray-Applied Foam Plastic Insulation (AC377), approved April 2020 (editorially revised July 2020).

6.12 Data in accordance with 2019 ICC 1100 Standard for Spray-applied Polyurethane Foam Plastic Insulation.

6.13 Quality Auditing Institute Listing Report of Staycell ONE STEP®502 covering fire performance in accordance with ASTM E84 and UL 1715.

6.14 Reports on Fire Tests of Interior Finish Materials in accordance with UL 1715 and NFPA 286.

6.15 Priest & Associates Engineering Analysis 11009 - Staycell ONE STEP®502 covering.

6.16 Jensen Hughes Engineering Analysis "NFPA 285 Testing Analysis and Allowable Assembly Modifications for Precast Concrete Exterior Wall Systems", dated January 18, 2022.

6.17 Test reports are from laboratories accredited in accordance with ISO/IEC 17025.

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on NCFI Polyurethanes InsulStar®SmartSPF™, InsulBloc® SmartSPF™, and InsulStar®1.7 SmartSPF™ to assess its conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product's certification. Products are manufactured at locations in Section 2.7 of this report under a quality control program with periodic inspections under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org



TABLE 1 -- NFPA 285 COMPLYING EXTERIOR WALLS – NCFI INSULSTAR®SMARTSPF™ AND INSULBLOC®SMARTSPF™, CLOSED-CELL SPF ON EXTERIOR SIDE OF BASE WALL SYSTEM

| WALL COMPONENT | MATERIALS |
|---|---|
| Base wall system – Use either 1, 2 or 3 | 1 - Concrete wall – minimum 2-inch thick 2 - Concrete Masonry wall 3 - One layer – 5/8-inch thick Type X Gypsum wallboard on the interior, installed over steel studs: minimum 3 3/8-inch depth, minimum No. 20-gauge at a maximum of 24-inches OC with lateral bracing every 4 ft. vertically. |
| Floor-line Firestopping | 4 lb/cu ft. mineral wool (e.g., Thermafiber) in each stud cavity and at each floor-line – attached with Z-clips or equivalent. Mineral wool is not required in stud cavities at floor-lines when infill stud-wall construction ¹ is employed for exterior wall construction. |
| Cavity Insulation – Use either 1, 2, or 3 | 1 - None 2 - Full cavity depth or less of InsulStar®SmartSPF™, InsulBloc®SmartSPF™, or Staycell ONE STEP® 502 covering applied using sheathing as substrate and covering the width of the cavity and inside the stud flange. 3 - Any noncombustible insulation (if batts, may be either faced or unfaced) |
| Exterior sheathing – Use either 1 or 2 | 1 – 1/2.-inch-thick, exterior type gypsum sheathing 2 - 5/8-inch-thick, exterior type gypsum sheathing |
| Exterior insulation – Use either 1 or 2 | 1 - None 2 - InsulStar®SmartSPF™, InsulBloc®SmartSPF™, or Staycell ONE STEP® 502 covering – Total thickness to be a maximum of nominal 4 inches |
| Exterior Veneer – Use either 1, 2, 3, 4, 5,6 ,7, or 8 | 1 - Brick – Standard nominal 4-inch thick, clay brick. Installed with brick veneer anchors – standard types – installed maximum 24 inches OC vertically on each stud. A maximum 2-inch air gap between exterior insulation and brick 2 - Stucco – Minimum 3/4-inch-thick, exterior cement plaster, and lath. A secondary water-resistive barrier may be installed between the exterior insulation and the lath. The secondary water-resistive barrier shall not be full-coverage asphalt or butyl-based self-adhered membranes. 3 - Minimum 2-inch-thick Limestone, natural stone, or minimum 1 1/2 -inch-thick cast artificial stone. Any standard non-open-jointed installation technique such as shiplap, etc. may be used. 4 - Terracotta cladding – Use any terracotta cladding system in which the terracotta is a minimum of 1 1/4 -inches thick. Any standard non-open-jointed installation technique such as shiplap etc. may be used. 5 – Minimum 1-inch thick, Clark Pacific glass-fiber-reinforced-concrete (GFRC) panels, or the minimum 2 1/4-inch thick Infinite Façade precast concrete panels. Standard installation techniques may be used. Either InsulStar®SmartSPF™ or InsulBloc®SmartSPF™, are sprayed onto the interior face of the GFRC panels or the Infinite Façade concrete panels up to a maximum of 4 inches (101 mm). 6 – Minimum 1-inch-thick, Gate Precast Gate Liter precast concrete panels. Standard installation techniques may be used. InsulStar®SmartSPF™, or InsulBloc®SmartSPF™, is sprayed onto the interior face of the precast concrete panels up to a maximum of 4-inches (101 mm). 7. Minimum 3/4-inch thick, Willis Construction precast concrete panels. Willis Construction standard installation technique shall be used. SPF installation as specified in note below. 8. Minimum 3/4-inch thick precast concrete panels. SPF installation as specified in note below. SPF Installation Note: ‘Exterior Veneer - Items 5, 6, 7, and 8 use spray polyurethane foams from the ‘exterior insulation’ category and are sprayed onto the interior face of the concrete panels to a maximum thickness of 4 inches. Items 5, 6, 7, and 8 may be used with any item from ‘Base Wall System’ and do not require an ‘Exterior Sheathing’. These items shall not be used with SPF as specified in ‘Cavity Insulation’. <i>(Table continued on next page)</i> |



| | |
|--|--|
| <p>Exterior Wall Openings (Doors/Windows) Perimeter Protection Materials</p> | <p>Where openings in exterior walls occur (i.e., windows, doors, etc.) the gap between the exterior sheathing and interior face of the exterior façade shall be closed off with one of the following materials at the sill, jambs, and header:</p> <ol style="list-style-type: none"> 1. Minimum 25-ga thick steel flashing 2. Minimum 2-inch thick, min 4-pcf, mineral wool insulation, compressed into the gap between the exterior sheathing and exterior façade. When mineral wool is used steel flashing is not required. |
|--|--|

¹ - Infill stud wall construction refers to the condition where the stud framing of an exterior wall is interior to the floor-line slab edges, effectively terminating the stud cavity at each floor-line and creating sectioned stud bays in between sequential floors.

TABLE 2 --NFPA 285 COMPLYING WALLS – NCFI INSULSTAR® SMARTSPF™, INSULBLOC® SMARTSPF™, AND INSULSTAR® 1.7 SMARTSPF™ CLOSED-CELL SPF IN WALL CAVITY ONLY

| WALL COMPONENT | MATERIALS |
|--|---|
| Base wall system – Use either: 1 with the interior, steel studs, minimum 3 5/8-inch depth, minimum No. 20-gauge at a maximum of 24-inch on center with lateral bracing every 4 ft. vertically, or 2 or 3 | <ol style="list-style-type: none"> 1 - 1 layer of 5/8-inch-thick Type X exterior gypsum sheathing installed on the exterior side of the steel studs 2 - Concrete wall – minimum 2-inch-thick 3 - Concrete Masonry wall |
| Floor-Line Firestopping | 4 lb/ft ³ mineral wool (e.g., Thermafiber) friction-fit in each wall stud cavity at each floor-line. Mineral wool is not required in stud cavities at floor-line when infill floor-line construction ¹ is employed for exterior wall construction. |
| Cavity Insulation – Use either 1, or 2 | <ol style="list-style-type: none"> 1 - None 2 - Full cavity depth or less of InsulStar® SmartSPF™, InsulBloc® SmartSPF™, or InsulStar® 1.7 SmartSPF™ spray polyurethane foam or Staycell ONE STEP® 502 covering applied using sheathing or concrete or masonry as substrate and covering the width of the cavity and inside the stud flange |
| Interior gypsum wallboard | Minimum 5/8-inch-thick Type X gypsum wallboard |
| Exterior Wall Covering – Use either 1, 2, or 3 with note 4. | <ol style="list-style-type: none"> 1 - Any non-combustible exterior wall covering material 2 - Any combustible exterior wall covering system that has successfully been tested in accordance with NFPA 285 3 - Any combustible exterior wall covering system up to a maximum wall height of 40 ft. above grade plane. If the combustible material is fire retardant treated wood, the maximum wall height can be 60 ft. above grade plane 4 - For base wall 2 or 3, a covering is optional but not required. Use an Exterior wall covering as described in 1, 2, or 3 above |
| Window/Door Perimeters | Framed as required for the base wall. Use No.25-gauge(min) sheet steel for flashing area outside of the base wall. |

¹ - Infill stud wall construction refers to the condition where the stud framing of an exterior wall is interior to the floor-line slab edges, effectively terminating the stud cavity at each floor-line and creating sectioned stud bays in between sequential floors.



BARNHARDT MANUFACTURING INC.
dba -NCFI POLYURETHANES
PO BOX 1528
Mount Airy, North Carolina 27030
800-346-8229
www.ncfi.com

**INSULSTAR®/INSULBLOC® SPRAY
 APPLIED POLYURETHANE FOAM
 SYSTEM**

CSI Section:
07 10 00 Dampproofing and Waterproofing

1.0 RECOGNITION

InsulStar® and InsulBloc® spray-applied polyurethane foam systems have been evaluated for dampproofing, waterproofing and fire performance characteristics, and complies with the intent of the following codes and regulations:

- 2021, 2018, 2015, and 2012 International Building Code® (IBC)
- 2021, 2018, 2015, and 2012 International Residential Code® (IRC)

2.0 LIMITATIONS

Use of InsulStar® and InsulBloc® spray-applied polyurethane foam systems recognized in this report is subject to the following limitations:

2.1 InsulStar® and InsulBloc® spray-applied polyurethane foam shall be installed in accordance with the manufacturer’s installation instructions, this evaluation report, and the applicable code, and if there are any conflicts between the manufacturer’s published installation instructions and this report, this report governs.

2.2 A copy of this report shall be available on the job site at all times during installation.

2.3 InsulStar® and InsulBloc® shall be separated from the interior of the building by an approved thermal barrier, or a minimum of 1-inch (25 mm) thickness of masonry or concrete, in accordance with IBC Section 2603.4.

2.4 InsulStar® and InsulBloc® shall not be left exposed for more than 3 months prior to backfilling. The backfill material shall be clean soil, free of rocks or other deleterious materials. Placement of backfill shall be in lifts and compacted in a manner that does not damage the foundation or the insulation material, in accordance with IBC Section 1804.3 in the 2021, 2018 and 2015 editions, Section 1804.2 in the 2012 edition as applicable. Where foundation walls extend above the

backfill grade line, the foam shall be covered with an approved wall covering or protected from ultraviolet (UV) light exposure in accordance with NCFI’s written instructions.

2.5 InsulStar® and InsulBloc® shall not be installed in areas where the probability of termite infestation is very heavy, in accordance with Section 2603.8 in the 2021, 2018 and 2015 editions, and Figure 2603.9 in the 2012 edition of the IBC, or IRC Section R318.4, as applicable, except where the buildings walls, floors ceilings, and roofs are entirely of noncombustible materials or preservative-treated wood, or an approved method of protecting the foam plastic and structure from subterranean termite damage is provided,

2.6 Jobsite labeling and certification of the waterproofing shall comply with IBC Section 2603.2 or RC Section R316.2, as applicable.

2.7 Manufacturer’s installation instructions shall be provided to the building official upon request for inspection purposes.

2.8 InsulStar® and InsulBloc® shall be installed in accordance with the applicable code, the manufacturer’s published installation instructions, and this report. Where there is a conflict, the most restrictive requirements shall govern.

2.9 The InsulStar® and InsulBloc® spray-applied polyurethane foam systems recognized in this report are produced by NCFI in Mount Airy, North Carolina, and Missouri City, Texas. .

3.0 PRODUCT USE

3.1 General: InsulStar® and InsulBloc® spray-applied polyurethane foam systems are used as dampproofing or waterproofing on the exterior face of below-grade concrete or masonry foundation walls. The foam system is an alternative to the dampproofing materials specified in IBC Section 1805.2.2 or IRC Section R406.1, and the waterproofing materials specified in IBC Section 1805.3.2 or IRC Section R406.2.

3.2 Installation:

3.2.1 General: InsulStar® and InsulBloc® spray-applied foam waterproofing shall be installed in accordance with the manufacturer’s installation instructions and this report. Concrete or masonry below-grade walls to be waterproofed shall be designed and constructed to withstand the hydrostatic pressures and other lateral loads to which the walls will be subjected, in accordance with IBC Section 1805.3.2 or IRC Section R404 as applicable. The InsulStar® and InsulBloc® insulation shall be applied from the bottom of the wall to not less than 12 inches (305 mm) above the maximum elevation of the ground-water table.

The product described in this Uniform Evaluation Service (UES) Report has been evaluated as an alternative material, design or method of construction in order to satisfy and comply with the intent of the provision of the code, as noted in this report, and for at least equivalence to that prescribed in the code in quality, strength, effectiveness, fire resistance, durability and safety, as applicable, in accordance with IBC Section 104.11. This document shall only be reproduced in its entirety.





3.2.2 Application: InsulStar® and InsulBloc® shall be applied using spray equipment, approved by NCFI Polyurethanes, using a volumetric positive displacement pump with a 1:1 ratio (Part “A”: Part “R”) and properly sized spray nozzle.

3.2.3 Waterproofing: InsulStar® and InsulBloc® shall be applied to below-grade walls of concrete or masonry. Both InsulStar® and InsulBloc® are applied in a minimum of two passes with a minimum thickness of 0.75 inches (19 mm) per pass. The maximum thickness of each pass shall not exceed 2 inches (51 mm). Multiple passes are used to achieve the required thickness for insulation purposes.

3.2.4 Insulation Value: Reporting of the R-value of the InsulStar® and InsulBloc® foam is outside of the scope of this report. Use of the InsulStar® and InsulBloc® as insulations shall be in accordance with a valid evaluation report from an approved and accredited evaluation report provider verifying compliance with IBC Section 2603.5.

3.2.5 Above Grade Applications: Use of InsulStar® and InsulBloc® installed on above-grade exterior walls is outside of the scope of this report. Qualified wall coverings and ultraviolet (UV) protective coatings shall be provided by the manufacturer, based on the type of construction for the application.

4.0 PRODUCT DESCRIPTION

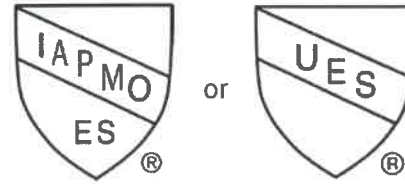
4.1 General: InsulStar® and InsulBloc® are two-component, spray-applied, closed-cell polyurethane foam plastic waterproofing and dampproofing having a nominal density of 2.0 pounds per cubic foot (32 kg/m³). InsulStar® and InsulBloc® have a maximum allowable resistance to hydrostatic pressure of 7.5 psi (52 kPa) when tested over a 1/8 inch wide (3.2 mm) crack in accordance with ASTM C5385. The products are normally packaged in 55-gallon drums (208 L), labeled Part “A” and Part “R”. InsulStar® and InsulBloc® have a moisture vapor permeance of less than 1 perm at a thickness of 1.5 inches (38 mm).

4.2 Surface Burning Characteristics: InsulStar® and InsulBloc®, when tested in accordance with ASTM E84 at a maximum thickness of 4 inches (102 mm) and a nominal density of 2.0 pounds per cubic foot (32 kg/m³), exhibited a flame spread index of 25 or less and a smoke-developed index of 450 or less.

5.0 IDENTIFICATION

InsulStar® and InsulBloc® spray-applied polyurethane foam components are identified with the manufacturer’s name (NCFI Polyurethanes), address, product name (InsulStar® or InsulBloc®) use and application instructions, density, flame spread and smoke-development index, and the Evaluation Report number (ER-340).

Either one of the IAPMO UES Marks of Conformity, as shown below, may also be used.



IAPMO UES ER-340

6.0 SUBSTANTIATING DATA

6.1 Test reports are from laboratories in compliance with ISO/IEC 17025.

6.2 Data in accordance with applicable portions of ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), approved April 2020 (Editorially revised July 2020)

6.3 Applicable sections of ICC-ES Acceptance Criteria for Cold, Liquid-applied, Below-grade, Exterior Dampproofing and Waterproofing Materials (AC29), approved June 2011 (Editorially Revised August 2020).

7.0 STATEMENT OF RECOGNITION

This evaluation report describes the results of research completed by IAPMO Uniform Evaluation Service on InsulStar® and InsulBloc® spray-applied polyurethane foam systems to assess conformance to the codes shown in Section 1.0 of this report and serves as documentation of the product certification. Products are manufactured at locations noted in Section 2.9 of this report under a quality control program with periodic inspection under the supervision of IAPMO UES.

For additional information about this evaluation report please visit www.uniform-es.org or email us at info@uniform-es.org

ICC-ES Evaluation Report

ESR-1615

Reissued September 2023


This report also contains:

- FBC Supplement
- SI Supplement

Subject to renewal September 2025

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| <p>DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION</p> <p>Section: 07 21 00 - Thermal Insulation</p> <p>Section: 07 25 00 - Water-resistive Barriers/Weather Barriers</p> | <p>REPORT HOLDER:</p> <p>BARNHARDT MANUFACTURING COMPANY dba NCFI POLYURETHANES</p> | <p>EVALUATION SUBJECT:</p> <p>INSULSTAR® AND INSULBLOC® SPRAY-APPLIED POLYURETHANE INSULATIONS</p> |  |
|---|---|--|---|

1.0 EVALUATION SCOPE

1.1 Compliance with the following codes:

- 2015, 2012, and 2009 [International Building Code® \(IBC\)](#)
- 2015, 2012, and 2009 [International Residential Code® \(IRC\)](#)
- 2015, 2012 and 2009 [International Energy Conservation Code® \(IECC\)](#)
- 2013 *Abu Dhabi International Building Code (ADIBC)*†

†The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

- Other Codes (see Section 8)

Properties evaluated:

- Surface-burning characteristics
- Physical properties
- Thermal resistance
- Attic and crawl space installation
- Air permeability
- Water vapor transmission
- Water-resistive barrier
- Fire-resistance-rated construction
- Exterior walls in Type I through IV construction

1.2 Evaluation to the following green code(s) and/or standards:

- 2022 [California Green Building Standards Code \(CALGreen\)](#), Title 24, Part 11
- 2020, 2015, 2012 and 2008 ICC 700 [National Green Building Standard™](#) (ICC 700-2020, ICC 700-2015, ICC 700-2012 and ICC 700-2008)

Attributes verified:

See Section 2.0.

2.0 USES

InsulStar and InsulBloc spray-applied polyurethane foam insulations are used as thermal insulating material. The insulation may be used in any type of construction under the IBC (use on walls required to be of Type I, II, III or IV construction is addressed in Section 4.6) and dwellings under the IRC. The insulations may be used in nonstructural applications in wall and floor/ceiling assemblies, and on the exterior side of foundations and the underside of on-grade slabs; and may be used in attics and crawl spaces when installed as described in Section 4.4. The insulations may be used as vapor retarders (Section 3.5), air barriers (Section 3.4) and as air-impermeable insulation (Section 4.4). The insulations may be used as alternatives to the water-resistive barrier required in IBC Section 1404.2 and IRC Section R703.2 when installed as described in Section 4.5. The insulations may be used in fire-resistance-rated construction when installed as described in Section 4.7.

The attributes of the spray foam insulations as an alternative water-resistive barrier have been verified as conforming to the provisions of (i) CALGreen Section 5.407.1 and (ii) ICC 700-2020 Sections 602.1.8, 11.602.1.8, 1202.6 and 13.104.1.4; (iii) ICC 700-2015 Section 602.1.8, 11.602.1.8 and 12.6.602.1.8; (iv) ICC 700-2012 Section 602.1.8, 11.602.1.8 and 12.5.602.1.8; and (v) ICC 700-2008 Section 602.9 for water-resistive barriers. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

The attributes of the insulations have been verified as conforming to the provisions of ICC 700-2008 Section 703.2.1.1.1(c) as an air impermeable insulation. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance.

3.0 DESCRIPTION

3.1 General:

InsulStar[®] and InsulBloc[®] are two-component, closed-cell, one-to-one-by-volume spray polyurethane foam systems with a nominal density of 2 pcf (32 kg/m³). InsulStar[®] and InsulBloc[®] insulation's liquid components are supplied in nominally 55-gallon (208 L) drums, labeled as "A" component or "R" component. The insulation components have a shelf life of six months when stored at temperatures between 70°F (21°C) and 90°F (32°C).

3.2 Surface-burning Characteristics:

The insulation, at a maximum thickness of 4 inches (102 mm) and a nominal density of 2 pcf (32 kg/m³), has a flame-spread index of less than 25 and a smoke-developed index of less than 450 when tested in accordance with ASTM E84 (UL 723). There is no thickness limit when installed behind a code-prescribed 15-minute thermal barrier, except as noted in Section 4.3.2.

3.3 Thermal Transmission R-values:

The InsulStar[®] and InsulBloc[®] insulations have thermal resistance *R*-values, at a mean temperature of 75°F (24°C), as shown in [Table 1](#).

3.4 Air Permeability:

InsulStar[®] and InsulBloc[®] spray-applied polyurethane foam insulations, at a minimum thickness of 1 inch (25.4 mm), are considered air-impermeable insulations in accordance with 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4) and 2015 IBC Section 1203.3, as applicable, based on testing in accordance with ASTM E283.

3.5 Vapor Retarder:

The foam plastic has a vapor permeance of less than 1 perm [5.7×10^{-11} kg / (m²sPa)], when applied at a minimum thickness of 1⁵/₁₆ inches (33 mm) and qualifies as a Class II vapor retarder as defined in IRC Section R202.

3.6 DC 315 Coating:

DC 315 Coating is manufactured by International Fireproof Technology, Inc. / Paint to Protect Inc., ([ESR-3702](#)), and is a water-based coating supplied in 5-gallon (19 L) pails and 55-gallon (208 L) drums. The coating material has a shelf life of 12 months when stored in factory containers at temperatures between 50°F (10°C) and 80°F (27°C).

4.0 INSTALLATION

4.1 General:

InsulStar[®] and InsulBloc[®] insulations must be installed in accordance with the manufacturer's published installation instructions and this report. The manufacturer's published installation instructions and this report must be strictly adhered to, and a copy of the instructions must be available at all times on the jobsite during installation.

4.2 Application:

InsulStar[®] and InsulBloc[®] insulations must be spray-applied to a suitable substrate on the jobsite using a volumetric positive displacement pump as identified in the NCFI application manual. Preparation of the substrate must be in accordance with the manufacturer's instructions. The insulation components must be stored at temperatures between 70°F (21°C) and 90°F (32°C) for several days before application. The insulation must not be used in areas that have a maximum in-service temperature greater than 180°F (82°C). The foam plastic must not be used in electrical outlet or junction boxes or in direct continuous contact with water.

4.3 Thermal Barrier:

4.3.1 Application with a Prescriptive Thermal Barrier: The InsulStar[®] and InsulBloc[®] insulations must be separated from the interior of the building by an approved thermal barrier of minimum 1/2-inch-thick (12.7 mm) gypsum wallboard or an equivalent 15-minute thermal barrier complying with and installed in accordance with the applicable code, except when the installation complies with the requirements set forth in Section 4.3.2. There is no thickness limit when installed behind a code-prescribed 15-minute thermal barrier. Within an attic or crawl space, installation must be in accordance with Section 4.4.

4.3.2 Application without a Prescriptive Thermal Barrier: The prescriptive 15-minute thermal barrier may be omitted when installation is in accordance with this section. The insulation and coating may be spray-applied to the interior facing of walls and the underside of roof sheathing or roof rafters, and in crawl spaces, and may be left exposed as an interior finish without a prescribed 15-minute thermal barrier or prescribed ignition barrier. The thickness of the foam plastic applied to the underside of the roof sheathing must not exceed 10 1/4 inches (260 mm). The thickness of the foam plastic applied to vertical wall surfaces must not exceed 8 1/4 inches (210 mm). The foam plastic must be covered on all surfaces with DC 315 Coating ([ESR-3702](#)) at a minimum wet film thickness of 18 mils (0.46 mm) [12 mils (0.31 mm) dry film thickness]. The coating must be applied over the InsulStar[®] or InsulBloc[®] insulation in accordance with the coating manufacturer's instructions and this report. Surfaces to be coated must be dry, clean and free of dirt, loose debris and other substances that could interfere with adhesion of the coating. The coating is applied in accordance with the manufacturer's published installation instructions.

4.4 Ignition Barrier – Attics and Crawl Spaces:

4.4.1 Application with a Prescriptive Ignition Barrier: When InsulStar[®] and InsulBloc[®] insulations are installed within attics or crawl spaces where entry is made only for service of utilities; an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable code, and must be installed in a manner so that the foam plastic insulation is not exposed. InsulStar[®] and InsulBloc[®] insulations as described in this section may be installed in unvented attics and unvented enclosed rafter spaces in accordance with 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4) or 2015 IBC Section 1203.3, as applicable.

4.4.2 Application without a Prescriptive Ignition Barrier: Where InsulStar[®] and InsulBloc[®] insulations are installed in accordance with Section 4.4.2.1 or Section 4.4.3, the following conditions apply:

- a. Entry to the attic or crawl space is to service utilities, and no storage is permitted.
- b. There are no interconnected attic or crawl space areas.
- c. Air in the attic or crawl space is not circulated to other parts of the building.
- d. Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806, except when air-impermeable insulation is permitted in unvented attics in accordance with 2012 Section R806.5 or 2009 IRC Section R806.4. Under-floor (crawl space) ventilation is provided when required by 2015 IBC Section 1203.4 (2012 IBC Section 1203.3) or IRC Section R408.1, as applicable.
- e. Combustion air is provided in accordance with IMC (International Mechanical Code[®]) Section 701.

4.4.2.1 Application without Intumescent Coating: InsulStar[®] and InsulBloc[®] insulations may be spray-applied to the underside of roof sheathing or roof rafters, and/or vertical surfaces; and in crawl spaces, InsulStar[®] and InsulBloc[®] insulations may be spray-applied to the underside of floors and/or vertical surfaces as described in this section. The thickness of the foam plastic applied to the underside of the top of the space

must not exceed 16 inches (406 mm). The thickness of the foam plastic applied to vertical surfaces must not exceed 11½ inches (292 mm). The foam plastic insulation may be left exposed and does not require covering with a prescriptive ignition barrier or an intumescent coating. The insulations may be installed in unvented attics as described in this section in accordance with 2015 and 2012 IRC Section R806.5 (2009 IRC Section R806.4).

4.4.3 Use on Attic Floors: InsulStar® and InsulBloc® insulations may be installed exposed at a maximum thickness of 11½ inches (292 mm) between joists in attic floors. The InsulStar® insulation must be separated from the interior of the building by an approved thermal barrier. The ignition barrier in accordance with IBC Section 2603.4.1.6 and IRC Section R316.5.3 may be omitted.

4.5 Water-resistive Barrier:

InsulStar® and InsulBloc® spray-applied polyurethane foam insulations may be used as the water-resistive barrier prescribed in IBC Section 1404.2 and IRC Section R703.2, when installed on exterior walls as described in this section. InsulStar® and InsulBloc® foam plastic must be spray-applied to the exterior side of sheathing, masonry or other suitable exterior wall substrates to form a continuous layer of 1 inch (25.4 mm) minimum thickness. All construction joints and penetrations are to be completely sealed with InsulStar® or InsulBloc®.

4.6 Exterior Walls of Type I, II, III, and IV Construction:

4.6.1 General: When used on walls of Type I, II, III and IV exterior wall construction, the InsulStar® and InsulBloc® spray-applied foam insulations must comply with Section 2603.5 of the IBC and this section (Section 4.6), and the maximum thickness of the insulation must not exceed 5 inches (127 mm). The potential heat of InsulStar® and InsulBloc® spray-applied foam plastic insulations is 1989 Btu/ft² (22.6 MJ/m²) per inch of thickness when tested in accordance with NFPA 259.

4.6.2 Specific Wall Assemblies: Wall assemblies complying with Section 4.6 must be as described in [Table 2](#) or [Table 3](#).

4.7 One-hour Fire-resistance-rated Wall Assemblies (Load-bearing):

InsulStar® and InsulBloc® spray-applied polyurethane foam insulations may be installed on load-bearing one-hour fire-resistance-rated walls (see [Figures 1](#) and [2](#)), provided the system is installed in accordance with the following:

4.7.1 Wood Framing: Minimum nominally 2-by-4 wood studs (kiln dried No. 2 spruce-pine-fir) spaced a maximum of 16 inches (406 mm) on center.

4.7.2 Wall Finish (both faces): Two layers of 5⁄8-inch-thick (16 mm) Type X gypsum sheathing complying with ASTM C36 or ASTM C1396, 4-feet-wide (1219 mm), installed vertically as follows: Base layer fastened to studs (with joints centered over studs) and plates with 6d coated nails, 17⁄8-inch-long (48 mm) spaced 7 inches (178 mm) on center or 17⁄8 inches (48 mm) long Type S or W steel screws spaced 6 inches (152 mm) on center. Face layer fastened to base layer at the edges with 15⁄8-inch-long (41 mm) Type G screws at 8 inches (203 mm) on center and to studs with 2½-inch-long (64 mm) Type S steel screws at 12 inches (305 mm) on center in the field, or face layer fastened to studs with 2½-inch-long (64 mm) Type S steel screws at 8 inches (203 mm) on center on the edges and 12 inches (305 mm) on center in the field. Face layer joints must be offset a minimum of 24 inches (610 mm) from base layer joints. All joints, screw or nail heads must be covered with joint tape and two coats of joint compound in accordance with GA-216 or ASTM C840. As shown in [Figure 1](#), the exterior face of the exterior wall can be finished with one layer of 7⁄16-inch (11 mm) oriented strand board (OSB) in lieu of two layers of Type X gypsum sheathing as shown in [Figure 2](#). The OSB must be fastened to studs with 17⁄8-inch-long (48 mm), 6d coated nails spaced 7 inches (178 mm) on center.

4.7.3 Insulation: InsulStar® or InsulBloc® foam is applied in the stud cavity at any thickness from partially filling to completely filling the stud cavity.

5.0 CONDITIONS OF USE:

The InsulStar® and InsulBloc® insulations described in this report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 InsulStar® and InsulBloc® insulations must be installed in accordance with the manufacturer's published installation instructions, this evaluation report and the applicable code. The instructions within this report govern if there are any conflicts between the manufacturer's published installation instructions and this report.
- 5.2 InsulStar® and InsulBloc® insulations must be separated from the interior of the building by an approved 15-minute thermal barrier, as described in Section 4.3, except when installation is as described in Section 4.3.2.

- 5.3 The surfaces to which spray-applied insulations are applied must be protected from the weather during application.
- 5.4 The spray-applied insulations must be applied by installers certified by NCFI Polyurethanes.
- 5.5 Use of the insulation in areas where the probability of termite infestation is "very heavy" must be in accordance with 2015 IBC Section 2603.8 (2012 IBC Section 2603.9), 2009 IBC Section 2603.8 or IRC Section R318.4, as applicable.
- 5.6 Jobsite certification and labeling of the insulation must comply with 2015 IRC Section N101.10.1 and N1101.10.1.1 (2012 IRC Section N1101.12.1 and N1101.12.1.1 and IECC Sections C303.1.1, C303.1.1.1, R303.1.1 and R303.1.1.1 or 2009 IRC Sections N1101.4 and N1101.4.1) and 2015 and 2012 IECC Sections C303.1.1, C303.1.1.1, R303.1.1 and R303.1.1.1 (2009 IECC Sections 303.1.1 and 303.1.1.1), as applicable.
- 5.7 InsulStar® and InsulBloc® insulations at a 1⁵/₁₆-inch (33 mm) thickness or greater is a Class II vapor retarder as defined in IRC Section R202 and IECC Section 202.
- 5.8 When InsulStar® and InsulBloc® insulations are used as water-resistive barriers, they must be protected from ultraviolet (UV) light exposure in accordance with NCFI's written instructions.
- 5.9 When use is on buildings of Type I, II, III or IV, construction must be as described in Section 4.6.
- 5.10 Use of the insulations in fire-resistance-rated construction must be in accordance with Section 4.7.
- 5.11 InsulStar® and InsulBloc® insulations are produced in Mount Airy, North Carolina, and Clearfield, Utah, under a quality-control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with [ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation \(AC377\)](#), dated May 2015 including reports of tests in accordance with Appendix X of AC377.
- 6.2 Reports on room corner fire tests in accordance with NFPA 286.
- 6.3 Reports on air leakage tests in accordance with ASTM E283.
- 6.4 Reports on water vapor transmission tests in accordance with ASTM E96.
- 6.5 Reports on fire tests in accordance with ASTM E119.
- 6.6 Reports of potential heat tests in accordance with NFPA 259.
- 6.7 Data in accordance with the [ICC-ES Acceptance Criteria for Foam Plastic Sheathing Panels Used as Water-resistive Barriers \(AC71\)](#), dated February 2003 (editorially revised January 2016).
- 6.8 Reports of fire propagation characteristics tests in accordance with NFPA 285.

7.0 IDENTIFICATION

- 7.1 Components of the InsulStar® and InsulBloc® insulations are identified with the manufacturer's name (NCFI Polyurethanes), address and telephone number; the product trade name (InsulStar® or InsulBloc®), use and application instructions; the density; the flame-spread and smoke-development indices; and the evaluation report number (ESR-1615).

International Fireproof Technology, Inc. / Paint to Protect Inc., DC 315 coating is labeled with the manufacturer's name and address; the product name; the date of manufacture, the shelf life or expiration date; the manufacturer's instructions for application, and evaluation report number ([ESR-3702](#)).

- 7.2 The report holder's contact information is the following:

BARNHARDT MANUFACTURING COMPANY dba NCFI POLYURETHANES
POST OFFICE BOX 1528
MOUNT AIRY, NORTH CAROLINA 27030
(336) 789-9161
www.ncfi.com

8.0 OTHER CODES

- 8.1 **Evaluation Scope:**

In addition to the codes referenced in Section 1.0, the products in this report were evaluated for compliance with the requirements of the following codes:

- 2006 *International Building Code*® (2006 IBC)
- 2006 *International Residential Code*® (2006 IRC)
- 2006 *International Energy Conservation Code*® (2006 IECC)

8.2 Uses:

The products comply with the above-mentioned codes as described in Sections 2.0 through 7.0 of this report, with the revisions noted below:

- **Application with a Prescriptive Thermal Barrier:** See Section 4.2.1, except the approved thermal barrier must be installed in accordance with Section R314.4 of the 2006 IRC.
- **Application with a Prescriptive Ignition Barrier:** See Section 4.3.1, except attics must be vented in accordance with Section 1203.2 of the 2006 IBC, and crawl space ventilation must be in accordance with Section 1203.3 of the 2006 IBC, as applicable. Additionally, an ignition barrier must be installed in accordance with Section R314.5.3 or R314.5.3 of the 2006 IRC, as applicable.
- **Application without a Prescriptive Ignition Barrier:** See Section 4.3.2, except attics must be vented in accordance with Section 1203.2 of the 2006 IBC or Section R806 of the 2006 IRC, and crawl space ventilation must be in accordance with Section 1203.3 of the 2006 IBC or Section R408 of the 2006 IRC, as applicable.
- **Protection Against Termites:** See Section 5.5, except use of the insulation in areas where the probability of termite infestation is “very heavy” must be in accordance with Section R320.5 of the 2006 IRC.
- **Jobsite Certification and Labeling:** See Section 5.6, except jobsite certification and labeling must comply with Sections 102.1.1 and 102.1.11, as applicable, of the 2006 IECC.

TABLE 1—THERMAL RESISTANCE (R-VALUES¹)

| THICKNESS (inches) | R-VALUES (°F.ft ² .h/Btu) |
|--------------------|--------------------------------------|
| 1 | 6.8 |
| 2 | 13 |
| 3 | 19 |
| 3.5 | 22 |
| 4 | 25 |
| 4.75 | 30 |
| 5 | 32 |
| 6 | 38 |
| 7 | 45 |
| 7.5 | 48 |
| 8 | 51 |
| 9 | 57 |
| 10 | 64 |
| 11 | 70 |
| 11.5 | 73 |
| 12 | 76 |
| 16 | 102 |

For SI: 1 inch = 25.5 mm; 1 °F.ft².h/Btu = 0.176 110 °K.m²/W.

¹R-values are calculated based on tested K-values at 1- and 4-inch thicknesses.

TABLE 2—NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES

| Wall Component | Materials ¹ |
|--|--|
| Base Wall System – Use either 1, 2 or 3 | 1 – Concrete wall 2 – Concrete masonry wall 3 – 1 layer 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or C1396 on the interior, installed over minimum 3 5/8-inch-deep, No. 20 gage, C-shaped steel studs, spaced a maximum of 24 inches on center. Gypsum wallboard must be attached with No. 6, 1 1/4-inch-long self-tapping screws located 8 inches on center along the perimeter and in the field of wallboard. Gypsum wallboard joints must be taped and treated with joint compound in accordance with ASTM C840 or GA-216. |
| Floorline Firestopping | 4 pcf mineral wool in each stud cavity at each floorline, attached with Z-clips |
| Cavity Insulation – Use either 1, 2 or 3 | 1 – None 2 – Full cavity depth or less of InsulBloc® or InsulStar® applied using exterior sheathing as substrate and covering the width of the cavity and inside the stud flange 3 – Noncombustible insulation ¹ |
| Exterior Sheathing – Only for Base Wall System No.3 – Use either 1 or 2 | 1 – 1/2-inch-thick, exterior-type gypsum sheathing 2 – 5/8-inch-thick, exterior-type gypsum sheathing |
| Exterior Insulation – Use either 1 or 2 | 1 – None 2 – InsulStar® or InsulBloc® insulation spray-applied foam insulation up to a maximum nominal thickness of 5 inches |
| Exterior Wall Covering – Use either 1, 2, 3 or 4 | 1 – Brick - standard nominally 4-inch-thick clay brick; brick veneer anchors – standard types installed a maximum of 24 inches OC vertically on each stud – Maximum 2-inch air gap between exterior insulation and brick 2 – Stucco - minimum 3/4-inch-thick, exterior cement plaster and lath. A secondary water-resistive barrier may be installed between the exterior insulation and the lath. The secondary water-resistive barrier must not be full-coverage asphalt or butyl- based self-adhered membranes. 3 – Minimum 2-inch-thick limestone, natural stone or minimum 1 1/2-inch-thick cast artificial stone. Any standard non-open-jointed installation technique such as ship-lap, etc., may be used. 4 – Terracotta cladding – Use any terracotta cladding system in which the terracotta is a minimum of 1 1/4 inches thick. Any standard non-open-jointed installation technique such as ship-lap, etc., may be used. |

For SI: 1 inch = 25.5 mm; 1 pcf = 16.018 kg/m³.

¹Insulation must comply with the applicable requirements of 2015 or 2012 IBC Section 720.2 (2009 IBC Section 719.2).

TABLE 3—NFPA 285 COMPLYING EXTERIOR WALL ASSEMBLIES

| Wall Component | Materials |
|--------------------------------------|---|
| Interior Finish | 1 layer 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or C1396 on the interior, installed over 7/8-inch-deep hat channels attached to vertical and horizontal steel framing members. Gypsum wallboard must be attached with No. 6, 1 1/4-inch-long self-tapping screws located 8 inches on center along the perimeter and in the field of wallboard. Gypsum wallboard joints must be taped and treated with joint compound in accordance with ASTM C840 or GA-216. |
| Floorline Firesafing | 4 pcf mineral wool spanning from edge of slab to interior face of exterior veneer. Mineral wool to be attached with Z-clips or equivalent. |
| Panel Framing | Vertical and horizontal steel members with steel pin attachments designed to support the applicable loads in accordance with codes adopted by the jurisdiction where the project is located. |
| Panel Joints | Maximum 1-inch-wide panel joint with polyurethane backer rod inboard of Dow 790 sealant. |
| Interior Insulation | Maximum nominal 4-inch-thick InsulBloc spray polyurethane applied to the back of the exterior panels |
| Exterior Panels – Use either 1, 2 | 1 – Minimum 1-inch-thick glass-fiber reinforced concrete (GFRC) panels by Clark Pacific 2 – Minimum 2 1/4-inch-thick Clark Composite Architectural Precast Panels (C-CAPP) panels by Clark Pacific |
| Window Head Detail | Minimum 2-inch-thick, 4 pcf mineral wool insulation completely covering spray foam, attached with 3-inch-by-10-inch-by-14 gauge-by-6-inch-long custom bent plate support clips and a 6-inch-by-2-inch-by-1/8-inch-thick aluminum window header. See Figure 3 |
| Window Jamb detail | Minimum 2-inch-thick, 4 pcf mineral wool insulation completely covering spray foam, attached with 3-inch-by-10-inch-by-14 gauge-by-6-inch-long custom bent plate support clips. 1 layer 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or C1396 attached to the structural steel framing and completely covered with 1 layer of minimum 1/8-inch-thick aluminum flashing. See Figure 4 . |
| Window Sill detail | 1 layer 5/8-inch-thick Type X gypsum wallboard complying with ASTM C36 or C1396 attached to the structural steel framing and completely covered with 1 layer of minimum 1/8-inch-thick aluminum flashing. See Figure 5 |

For SI: 1 inch = 25.5 mm; 1 pcf = 16.018 kg/m³.

FIGURE 1
NON-SYMMETRICAL ONE-HOUR FIRE RESISTANCE-RATED WALL ASSEMBLY

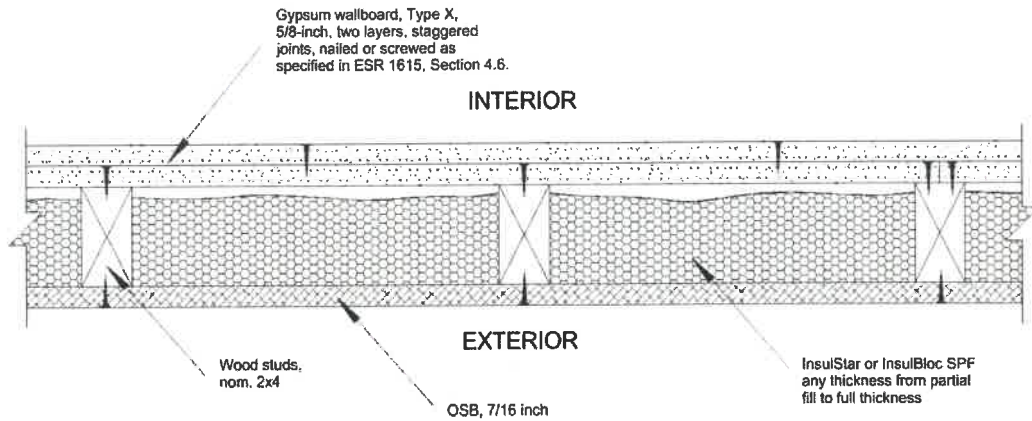


FIGURE 2
SYMMETRICAL ONE-HOUR FIRE RESISTANCE-RATED WALL ASSEMBLY

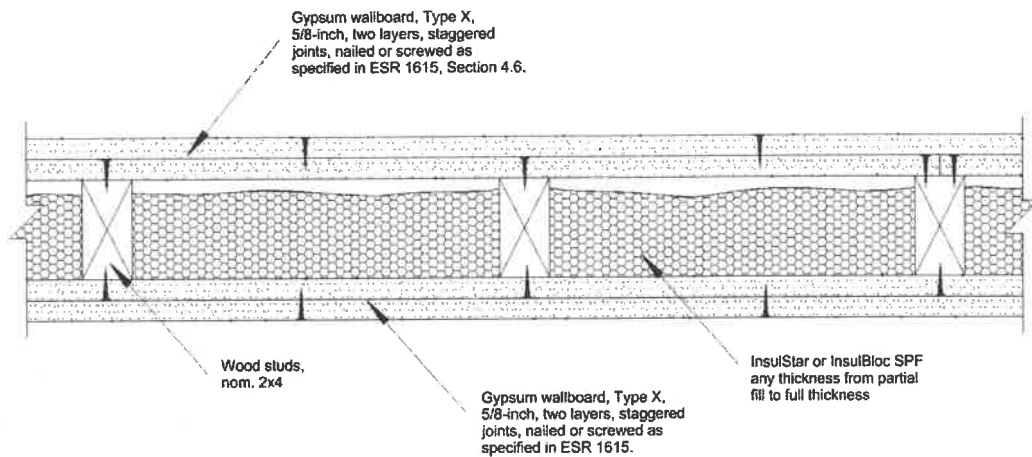
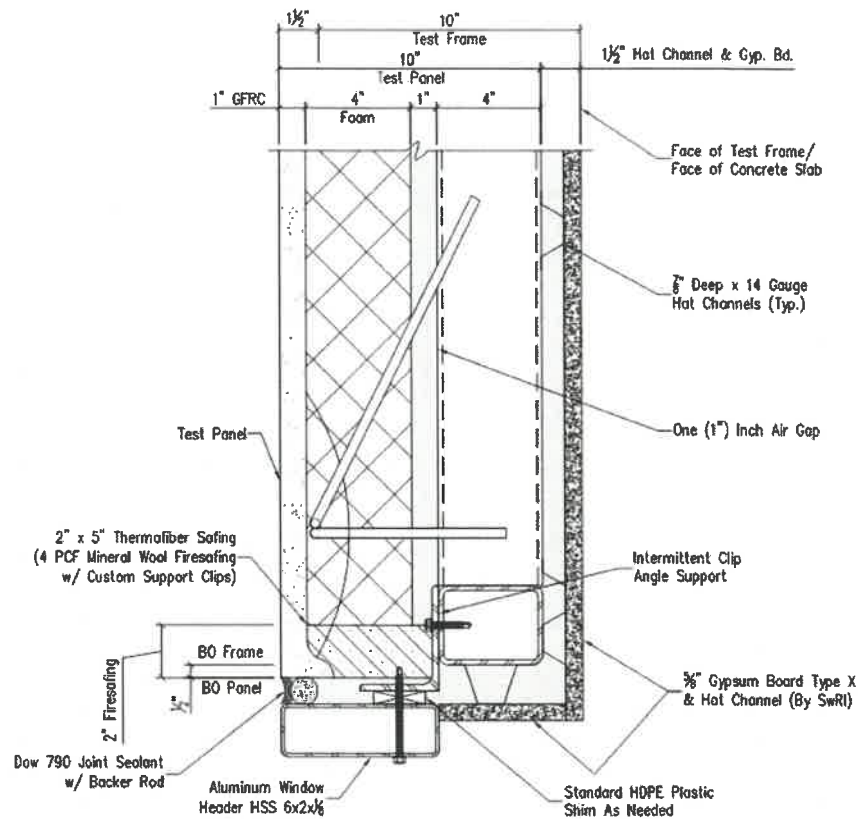
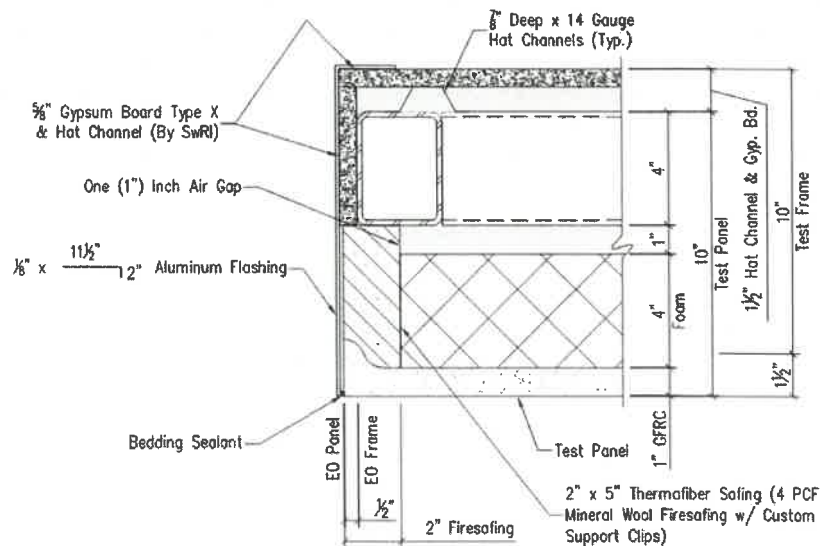


FIGURE 3



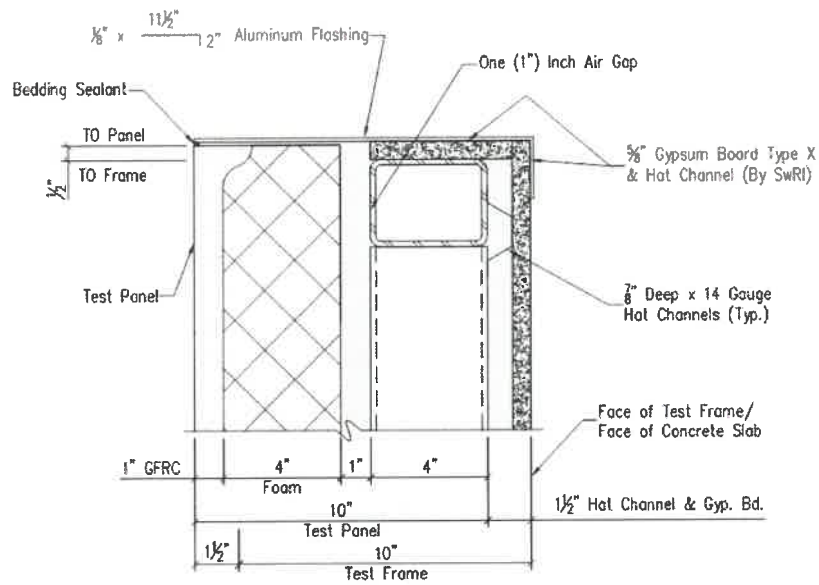
5 Detail - Window Head Condition
SCALE: 3" = 1'-0"

FIGURE 4



7 Detail - Window Jamb Condition
SCALE: 3" = 1'-0"

FIGURE 5



6 Detail - Window Sill Condition
 SCALE: 3" = 1'-0"

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION

Section: 07 21 00—Thermal Insulation

Section: 07 25 00—Water-resistive Barriers/Weather Barriers

REPORT HOLDER:

BARNHARDT MANUFACTURING COMPANY dba NCFI POLYURETHANES

EVALUATION SUBJECT:

INSULSTAR® AND INSULBLOC® SPRAY-APPLIED POLYURETHANE INSULATIONS

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2014 *Florida Building Code—Residential*
- 2014 *Florida Building Code—Building*

Properties Evaluated:

- Surface-burning characteristics
- Physical properties
- Thermal resistance
- Attic and crawl space installation
- Air permeability
- Water vapor transmission
- Water-resistive barrier
- Fire resistance-rated construction
- Exterior walls in Type I through IV construction

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to indicate that the InsulStar® and InsulBloc® spray-applied polyurethane foam insulations described in Sections 2.0 through 7.0 of the evaluation report comply with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, when designed and installed in accordance with the evaluation report under the following conditions:

InsulStar® and InsulBloc® spray-applied polyurethane foam insulations used in exterior walls of multistory buildings located in the High-Velocity Hurricane Zones must comply with Section 2612.3.2.4 of the *Florida Building Code—Building*.

For products falling under Florida Rule 9N-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued September 2023.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 21 00—Thermal Insulation

REPORT HOLDER:

BARNHARDT MANUFACTURING COMPANY dba NCFI POLYURETHANES

EVALUATION SUBJECT:

INSULSTAR® SPRAY-APPLIED POLYURETHANE INSULATION

1.0 EVALUATION SCOPE

Conformance to the following:

Seal and Insulate with ENERGY STAR Program, *Definitions and Testing Requirements for Residential Insulation, Version 1.0*

Properties evaluated:

- Thermal resistance
- Surface-burning characteristics

2.0 PURPOSE OF THIS SUPPLEMENT

This supplement is issued to certify that the insulation products described in Sections 2.0 through 7.0 of the evaluation report (ESR-1615) have been reviewed for compliance with the applicable codes noted in Section 1.0 of the evaluation report and with the requirements set forth in the Seal and Insulate with ENERGY STAR Program, *Definitions and Testing Requirements for Residential Insulation, Version 1.0*. The insulation product covered by this supplement is defined as “Spray or Pour Foam Insulation.”

The requirements for testing laboratory qualifications and product sampling, as well as the specific material and test standards and editions used in this evaluation, are as set forth in the applicable documentation noted in Section 6.0 of the evaluation report.

3.0 DEFINITIONS

The following definitions are from the *Definitions and Testing Requirements for Residential Insulation, Version 1.0*, and are applicable to the subject of this report.

3.1 General Definition:

Insulation: Any material mainly used to slow down heat flow. It may be mineral or organic, fibrous, cellular, or reflective (aluminum foil). It may be in rigid, semi-rigid, flexible, or loose-fill form.

3.2 Insulation Product Definition:

Spray or Pour Foam Insulation: A thermal insulating material that is sprayed or poured (as a gel or foamy liquid) into place, and expands or sets into a cellular foam and cures at the point of installation through a chemical reaction. Foamed materials include, but are not limited to polyurethane, polyisocyanurate, phenolic, and cementitious insulation.

3.3 Insulation Performance Definitions:

R-value: The inverse of the time rate of heat flow through a body from one of its bounding surfaces to the other surface for a unit temperature difference between the two surfaces, under steady state conditions, per unit area. For the purposes of the Seal and Insulate with ENERGY STAR program, only Imperial units will be accepted [(h·ft²·°F)/Btu].

Smoke-Development Index: The characteristic of a material to emit smoke when exposed to flame or fire compared to red oak and inorganic cement.

Flame-Spread Index: The characteristic of a material to resist the spreading of flames when exposed to flame or fire compared to red oak and inorganic cement.

3.4 Thermal Resistance:

The INSULSTAR insulation has thermal resistance *R*-values as noted in Table 1 of ESR-1615, based upon testing.

3.5 Installation:

3.5.1 General: Installation of the INSULSTAR insulation must be in accordance with the requirements set forth in Sections 4.0 and 5.0 (as applicable) of ESR-1615. The insulation is manufactured on-site by spray polyurethane foam applicators meeting the qualification requirements of NCFI Polyurethanes. The following personal protective equipment and ventilation requirements are reprinted from the NCFI Polyurethanes published installation instructions and are provided at the end of this report for informational purposes:

"F. SAFETY

3. PERSONAL PROTECTIVE EQUIPMENT (PPE):

a. **Skin:** Wear gloves, coveralls, apron and boots as necessary to prevent contact of liquid components or partially-cured SPF with skin. When handling liquid components, gloves should be made of nitrile, neoprene, butyl or PVC.

b. **Eyes:** Protect eyes while handling liquid components or spraying with safety goggles or safety goggles and a face shield. During spray application, eye protection may be provided by a full-face or hood respirator.

c. **Respiration:** Firms engaged in the application of NCFI foam systems must have a written respiratory protection program for employees engaged in handling or applying NCFI materials. Depending on the situation, respiratory protection may include dust masks, air-purifying respirators (APR), powered air-purifying respirators (PAPR), or supplied-air respirators (SAR).

4. **VENTILATION:** Provide ventilation and other engineering controls to exhaust vapors from work areas and to protect building occupants and other trades."

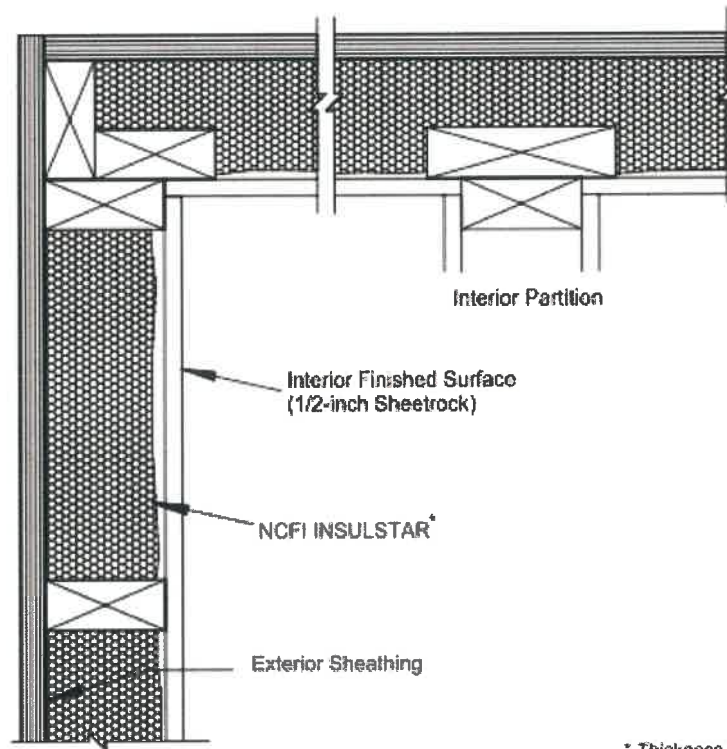
3.5.2 Occupancy Time after Installation: The re-entry or re-occupancy time shall be in accordance with the manufacturer's installation instructions, which state:

"E. RE-ENTRY

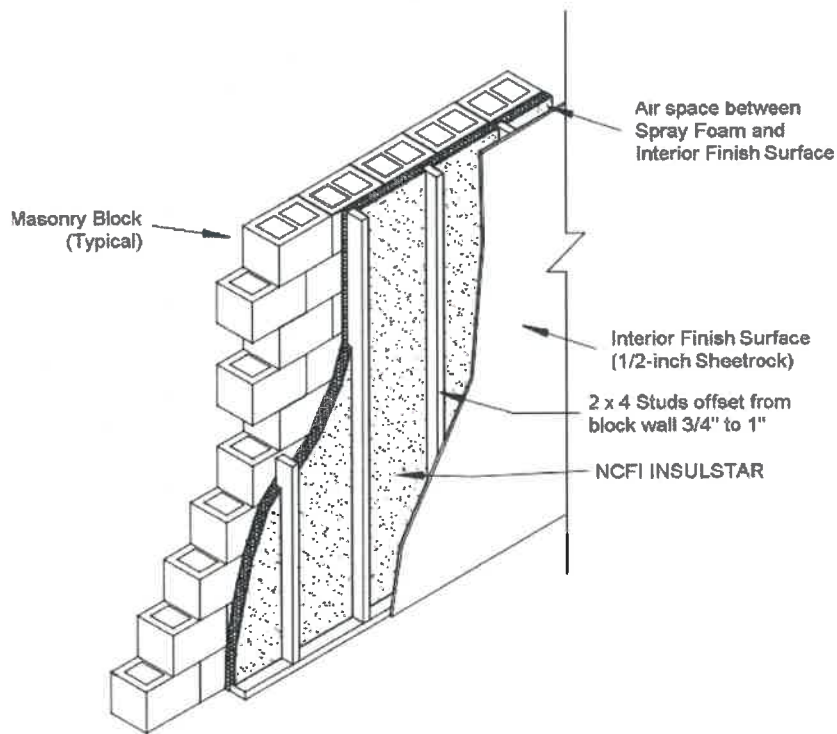
NCFI InsulStar reacts and cures within seconds of application. Re-entry times will vary depending on factors including ventilation. Typically, when ventilation is continued for 24 hours following the conclusion of spray application and re-entry may occur at that time."

3.5.3 Figures: The figures shown represent general installations of the INSULSTAR insulation in the following applications: above-grade wall, below-grade wall, vented and unvented crawl space, unvented cathedral ceiling, and vented and unvented attic. These figures are for illustration purposes and are not to be construed or used as construction documents.

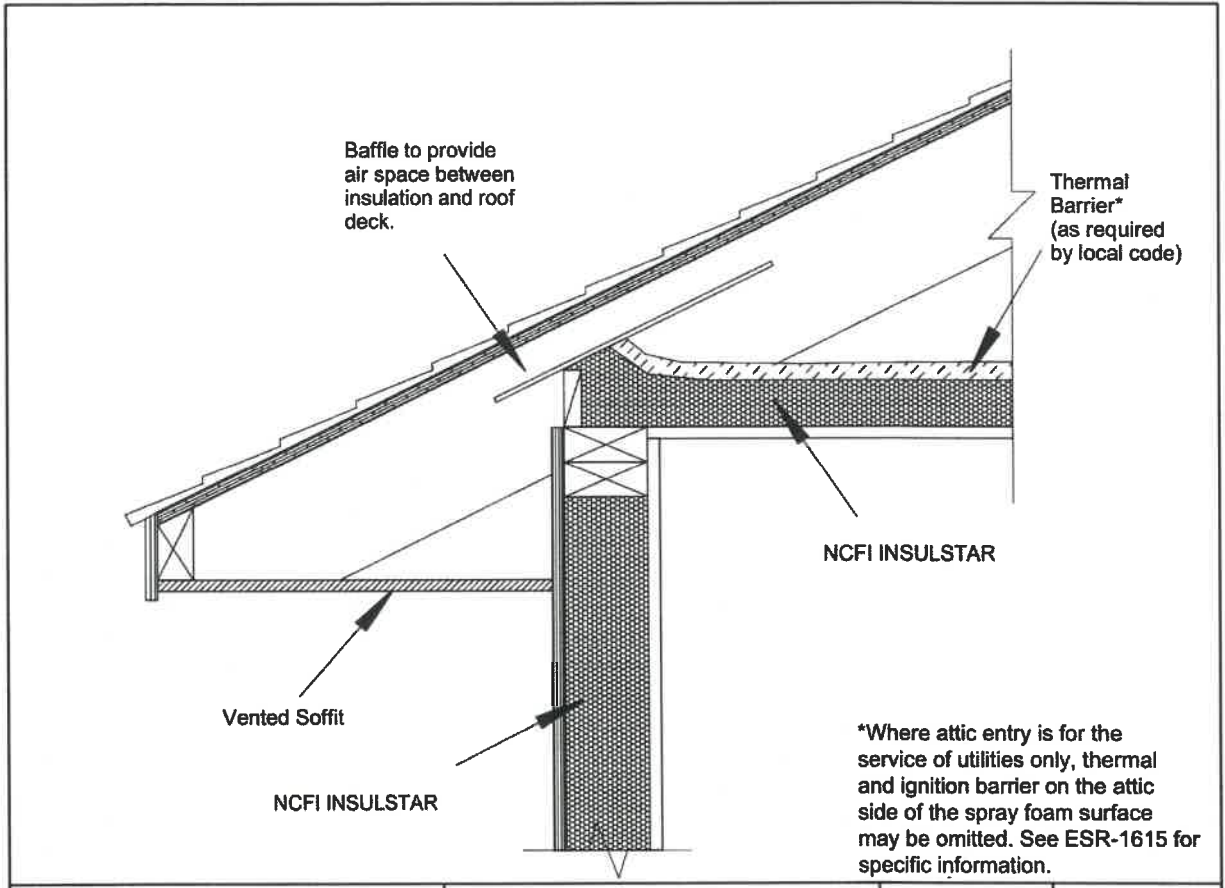
This supplement expires concurrently with the evaluation report, reissued September 2023.



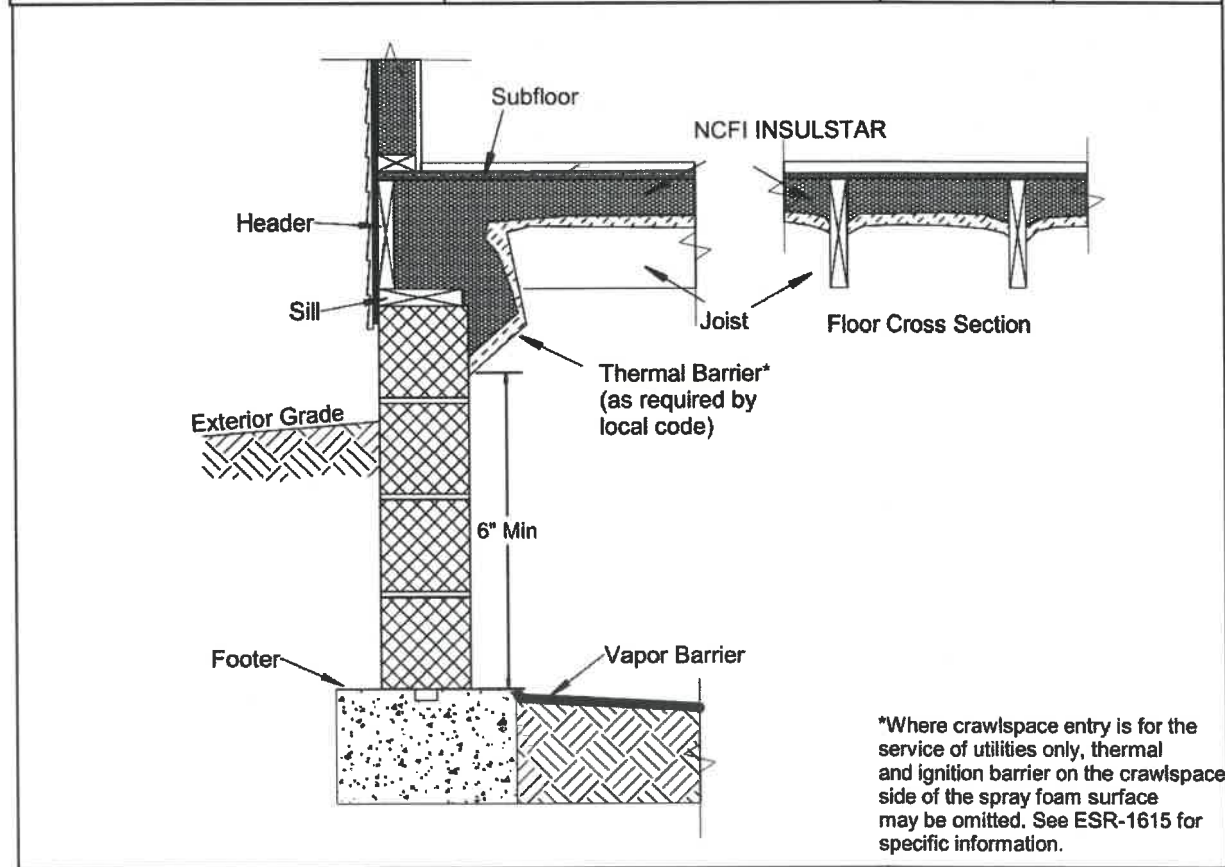
| | | | |
|----------------|-----------------------------|----------|--------|
| NCFI INSULSTAR | ABOVE GRADE WALL INSULATION | NCFI I-1 | 070413 |
|----------------|-----------------------------|----------|--------|



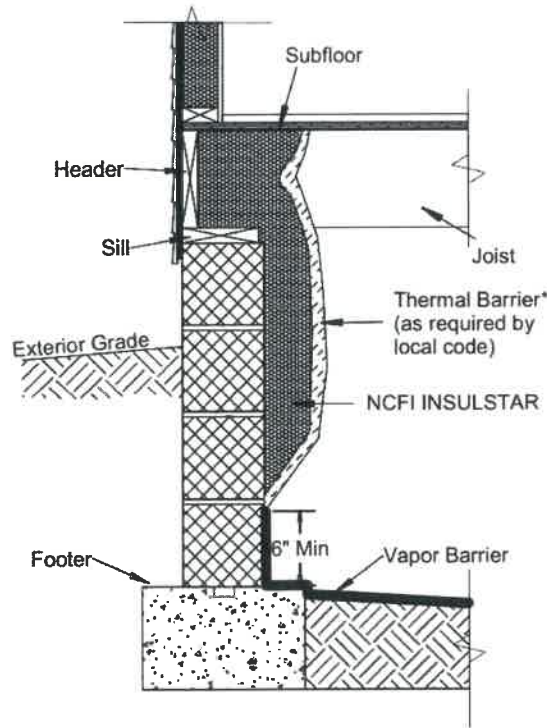
| | | | |
|----------------|--|----------|--------|
| NCFI INSULSTAR | BELOW GRADE WALL INSULATION (Insulation on Interior Side of Wall) | NCFI I-2 | 053013 |
|----------------|--|----------|--------|



| | | | |
|----------------|------------------------------|----------|--------|
| NCFI INSULSTAR | VENTED ATTIC: FLOOR / SOFFIT | NCFI I-3 | 082212 |
|----------------|------------------------------|----------|--------|



| | | | |
|----------------|--------------------|----------|--------|
| NCFI INSULSTAR | CRAWLSPACE: VENTED | NCFI I-4 | 082212 |
|----------------|--------------------|----------|--------|



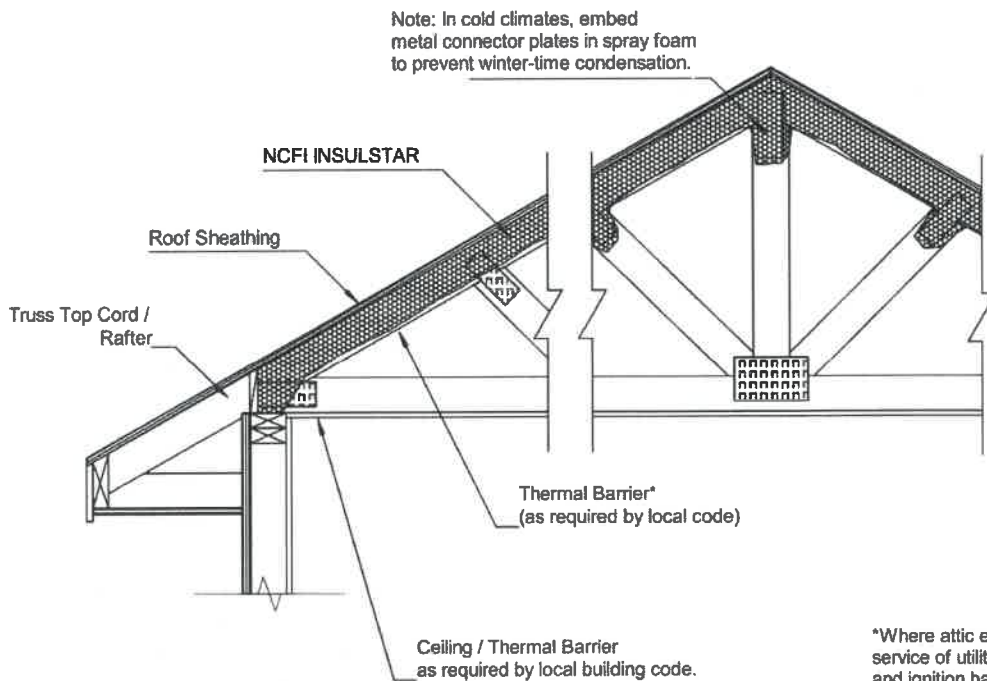
*Where crawlspace entry is for the service of utilities only, thermal and ignition barrier on the crawlspace side of the spray foam surface may be omitted. See ESR-1615 for specific information.

NCFI INSULSTAR

CRAWLSPACE: UNVENTED

NCFI I-5

082212



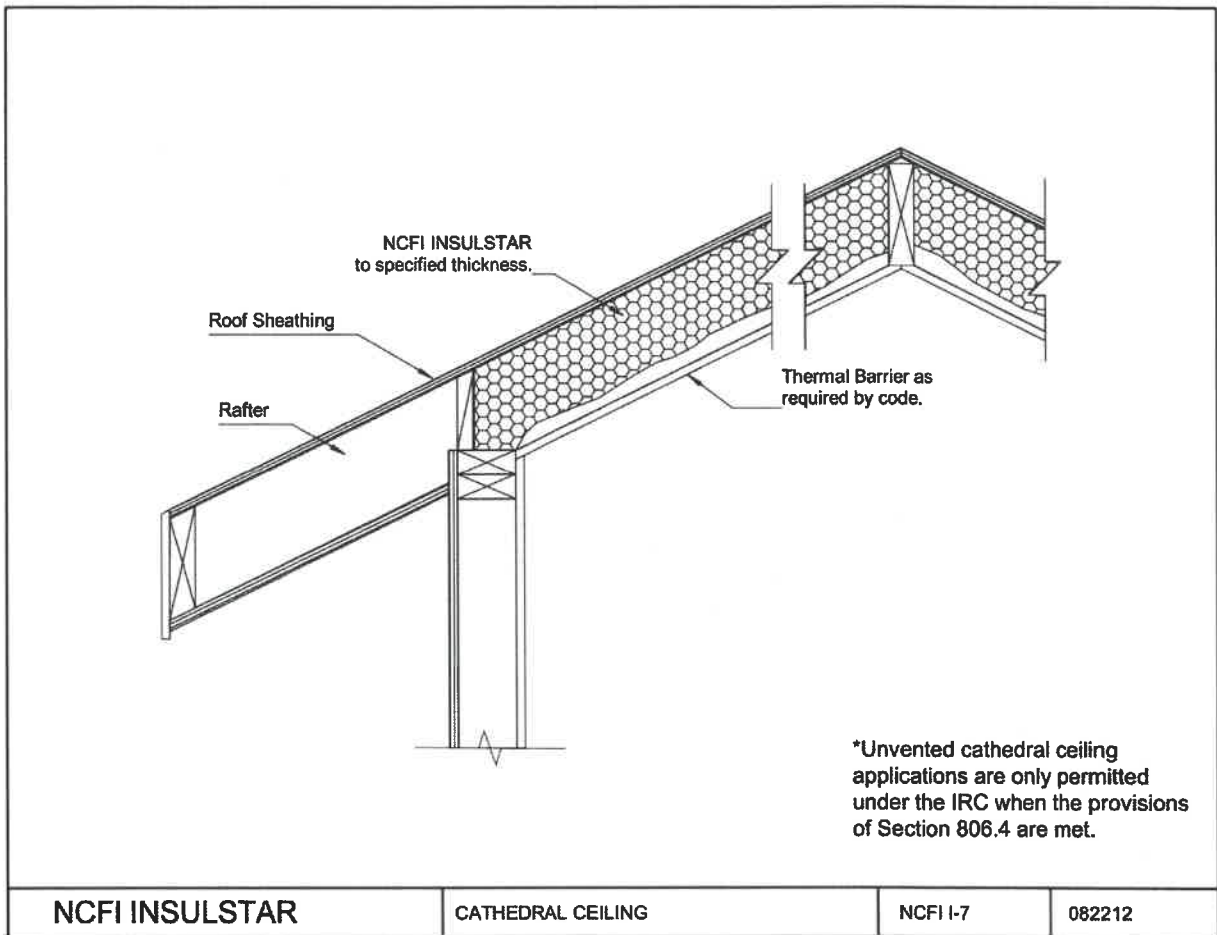
*Where attic entry is for the service of utilities only, thermal and ignition barrier on the attic side of the spray foam surface may be omitted. See ESR-1615 for specific information.

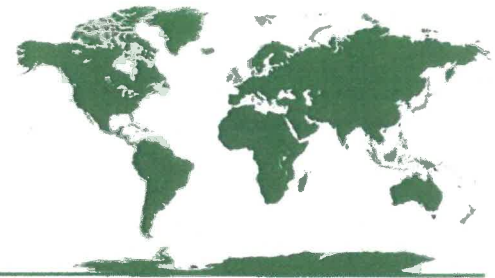
NCFI INSULSTAR

UNVENTED ATTIC / INSULATED ROOF DECK

NCFI I-6

082212





ICC-ES Evaluation Report ESR-3392

Reissued July 2023

Revised October 2023

This report is subject to renewal June 2024.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 57 00—Coated Foam Roofing

REPORT HOLDER:

NCFI POLYURETHANES

EVALUATION SUBJECT:

ENDURATECH® PREMIER ROOFING SYSTEM (COATED SPRAY POLYURETHANE FOAM ROOFING SYSTEM)

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2021, 2018, 2015, 2012 and 2009 *International Building Code*® (IBC)
- 2021, 2018, 2015, 2012 and 2009 *International Residential Code*® (IRC)
- 2013 *Abu Dhabi International Building Code* (ADIBC)[†]

[†]The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

Properties evaluated:

- Physical properties
- Impact resistance
- Wind resistance
- Fire classification
- Elimination of thermal barrier

2.0 USES

The EnduraTech® Premier Roofing System described in this evaluation report is used in the construction of classified roof coverings as noted in Table 1. The roof covering systems recognized in this report may be used on buildings of any type of construction.

3.0 DESCRIPTION

3.1 General:

The EnduraTech® Premier Roofing System consists of NCFI 10-011 spray polyurethane foam (SPF) plastic insulation covered with EnduraTech® R or EnduraTech® Q acrylic elastomeric coating. When installed as described in this report, these systems have roof classifications as set forth in Table 1.

3.2 Spray Polyurethane Foam Plastic Insulation:

3.2.1 General: NCFI 10-011 plastic insulation as formulated has a density between 2.5 and 3.0 pcf (40 and 43 kg/m³). The liquid components (designated as component A and component B) are available in 55-gallon (208 L) containers and 275-gallon (1041 L) totes. The liquid components must be stored at temperatures between 70°F (21°C) and 90°F (32°C) for several days before application and must not be exposed to direct sunlight. The shelf life of NCFI 10-011 liquid components is six months in unopened containers.

3.2.2 Surface-burning Characteristics: NCFI 10-011 plastic insulation has a flame-spread index of 25 or less for densities up to 3.0 pcf (43 kg/m³) when tested in accordance with UL 723 (ASTM E84) at a maximum thickness of 4 inches (102 mm). The classified roof assemblies noted in Table 1 are recognized for use without a thermal barrier based on testing in accordance with UL 1256, which is specified in IBC Section 2603.4.1.5.

3.3 Coatings:

EnduraTech® R and EnduraTech® Q Acrylic Elastomeric Coatings: EnduraTech® R (Standard) and EnduraTech® Q (Quickset) acrylic elastomeric coatings are single-component, liquid-applied, 100 percent acrylic coatings complying with ASTM D6083. The coatings are available in 5-gallon (19 L), 55-gallon (208 L) and 275-gallon (1041 L) totes, and have a shelf life of 12 months when stored in factory-sealed containers at temperatures between 60°F (15.5°C) and 110°F (44°C).

3.4 Impact and Foot Traffic Resistance:

The coated foam roof coverings described in this report meet requirements of the Resistance to Foot Traffic Test described in Section 5.5 of FM 4470, as referenced in IBC Section 1504.7.

4.0 INSTALLATION

4.1 Preparation of Substrate:

The substrates to be covered must be free of grease, oil, loose particles, moisture and other foreign materials that would impair adhesion of the foam to the substrate. Gravel-surfaced roofs must be cleaned by vacuuming or other suitable means to remove any loose gravel and dirt before application of the insulation. Areas not receiving an application of insulation must be masked off or otherwise protected from overspray.

4.2 Substrates:

4.2.1 Wood Substrates: Wood substrates must be minimum $1\frac{5}{32}$ -inch-thick (11.9 mm), code-complying, exterior grade or Exposure 1 wood structural panels. All wood structural panel substrate edges must be supported by blocking or have tongue-and-groove joints as required by IBC Section 2603.4.1.5 or IRC Section R314.5.2, as applicable. The wood surface must be primed, when specifically required, in accordance with the NCFI installation instructions.

4.2.2 Noncombustible Substrates:

4.2.2.1 Concrete Substrates: Structural concrete must have a minimum compressive strength of 2500 psi (17.2 MPa) [minimum of 24 MPa is required under ADIBC Appendix L, Section 5.1.1]. The concrete substrate must be thoroughly cured and primed or otherwise treated in accordance with NCFI installation instructions to ensure adequate adhesion.

4.2.2.2 Metal Substrates: Metal substrates must be a minimum of No. 22 gage [0.03 inch thick (0.76 mm)] galvanized steel deck. Metal decks must be cleaned of any adhesion inhibitors. If free of rust or loose scale, the steel surface may be cleaned by use of an air jet, vacuum equipment, or hand or power broom to remove loose dirt. Grease, oil or other obvious contaminants must be removed by a suitable detergent or cleaner. Application of a primer before application of the insulation must be in accordance with the NCFI installation instructions.

4.3 Roof Slope:

The insulation is spray-applied to roofs that have a minimum slope of $\frac{1}{4}$:12 (2 percent) and a maximum slope as specified in Table 1.

4.4 Foam Plastic Insulation Application:

NCFI 10-011 liquid components must be dispensed at a 1:1 ratio at the temperature and pressure specified in the manufacturer's installation instructions. The liquid components must be applied to the prepared substrate in passes that have thicknesses between $\frac{1}{2}$ inch and $1\frac{1}{2}$ inches (12.7 mm to 38 mm). Application of the foam plastic insulation must be performed in accordance with ambient-temperature, humidity and wind-speed requirements noted in the manufacturer's published installation instructions. The foam insulation must not be applied to wet or damp substrates, or when dew, condensation, precipitation, or freezing temperatures are expected prior to completion of application of the foam and coating. The finished foam surfaces must be smooth and free of voids, pinholes and crevices.

4.5 Coating Application:

The coating is applied to the foam substrate at the application rate specified in Table 1, in multiple passes of contrasting colors up to the thickness prescribed in NCFI's Installation Guide Specifications. The coating must be applied no less than two hours nor more than 72 hours following the application of the spray foam insulation. The insulation must be dry and free of dirt and foreign material when the coating is applied. The base coat must be applied the same day as the insulation unless a deviation from this requirement is specifically approved by NCFI. The coating must be cured for a sufficient time as specified in NCFI's installation instructions before subsequent layers are applied. The ambient temperature must be greater than 50°F (10°C) during application and above 32°F (0°C) for at least a 24-hour period after application.

4.6 Wind Resistance:

The allowable wind uplift pressure for the coated foam plastic roof covering is limited to that permitted by the code for the roof deck and structural framing.

4.7 Reroofing:

Prior to installation of new roof coverings, inspection in accordance with 2021, 2018 and 2015 IBC Section 1511 (2012 IBC Section 1510) or 2021, 2018 and 2015 IRC Section R908 (2012 IRC Section R907), and approval from the code official having jurisdiction, are required. Installation must be over uninsulated systems only. Prior to installation of the spray-applied foam plastic insulation, the roof surface must be prepared to assure adequate adhesion. All loose rock, cementitious coatings, peeling paint, dirt and debris must be removed by brooming, power vacuuming or wire brushing. Where the existing roof covering is removed to the substrate, the deck is prepared as set forth in Section 4.2.1, 4.2.2.1 or 4.2.2.2.

5.0 CONDITIONS OF USE

The EnduraTech® Premier Roofing System described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The installation and application of the EnduraTech® Premier roof covering system must comply with the applicable code, the report holder's published application instructions and this evaluation report. If there are any conflicts between the report holder's application instructions and this evaluation report, this report governs.
- 5.2 All materials must be applied by installers approved by NCFI Polyurethanes.
- 5.3 Where moderate or heavy foot traffic occurs, such as for maintenance of equipment, the roof covering must be adequately protected to prevent rupture or wearing of the surface.
- 5.4 The deck and supporting structure to which the EnduraTech® Premier Roofing System is applied must be designed to withstand the applicable wind pressures determined in accordance with ASCE 7.
- 5.5 Flashing must be installed in accordance with IBC Section 1503.2 or IRC Section R903.2, as applicable.
- 5.6 The NCFI 10-011 plastic insulation is manufactured in Mount Airy, North Carolina, and Clearfield, Utah, under a quality control program with inspections by ICC-ES.

EnduraTech® R and EnduraTech® Q acrylic elastomeric coatings are manufactured in Scottsdale, Arizona, under a quality control program with inspections by ICC-ES.

6.0 EVIDENCE SUBMITTED

- 6.1 Data in accordance with the ICC-ES Acceptance Criteria for Spray-applied Foam Plastic Insulation (AC377), dated June 2023.
- 6.2 Reports of testing in accordance with ASTM D6083.
- 6.3 Reports of "Resistance to Foot Traffic" testing in accordance with Section 5.5 of FM 4470.
- 6.4 Reports of testing in accordance with UL 723.
- 6.5 Reports of testing in accordance with UL 790.
- 6.6 Reports of testing in accordance with UL 1256.

7.0 IDENTIFICATION

- 7.1 Containers of NCFI 10-011 liquid components are labeled with the manufacturing date, the NCFI Polyurethanes name and address, the product name (NCFI 10-011), component type (A or B), the lot numbers, the flame spread index, and the evaluation report number (ESR-3392).
- 7.2 Containers of EnduraTech® R and EnduraTech® Q liquid-applied coatings are labeled with the NCFI Polyurethanes name and address, the product name, the lot number, the evaluation report number (ESR-3392).

7.3 The report holder’s contact information is the following:

NCFI POLYURETHANES
POST OFFICE BOX 1528
MOUNT AIRY, NORTH CAROLINA 27030
(800) 346-8229
www.ncfi.com

TABLE 1—ENDURATECH® PREMIER ROOF COVERING SYSTEM FIRE CLASSIFICATION

| SYSTEM NO. ¹ | ROOF DECK TYPE | FOAM PLASTIC INSULATION | | COATING | | TOP SURFACING | MAXIMUM ROOF SLOPE | ROOF CLASSIFICATION |
|-------------------------|--|-------------------------|----------------------------|--------------------|--|---------------------------------------|---------------------------------|---------------------|
| | | Product Designation | Minimum Thickness (inches) | Type | Application Rate | | | |
| 1 | Noncombustible | 10-011 | 1 | EnduraTech® R or Q | Two applications at 1.75–1.85 gal/sq./coat | None | 1:12 | A |
| 2 | Noncombustible | 10-011 | 1 | EnduraTech® R or Q | 3.7 gal/sq., maximum | No. 11 roofing granules at 45 lbs/sq. | 4:12 | A |
| 3 | Minimum ¹⁵ / ₃₂ -thick plywood | 10-011 | 1.5 | EnduraTech® R or Q | 3.7 gal/sq., maximum | No. 11 roofing granules at 45 lbs/sq. | ¹ / ₂ :12 | B |

For SI: 1 inch = 25.4 mm.

¹ Roof covering systems may be applied over an existing uninsulated roof covering without changing the existing roof covering’s fire classification.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 57 00—COATED FOAM ROOFING

REPORT HOLDER:

NCFI POLYURETHANES

EVALUATION SUBJECT:

ENDURATECH® PREMIER ROOFING SYSTEM (COATED SPRAY POLYURETHANE FOAM ROOFING SYSTEM)

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that the EnduraTech® Premier Roofing System, described in ICC-ES evaluation report ESR-3392, has also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 Florida Building Code—Building
- 2017 Florida Building Code—Residential

2.0 CONCLUSIONS

The EnduraTech® Premier Roofing System, described in Sections 2.0 through 7.0 of the evaluation report ESR-3392, complies with the *Florida Building Code—Building* and the *Florida Building Code—Residential*, provided the design and installation are in accordance with the *International Building Code*® provisions noted in the evaluation report.

Use of the EnduraTech® Premier Roofing System for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated, and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality assurance program is audited by a quality assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued July 2023 and revised October 2023.



ICC-ES Listing Report

ESL-1460

Reissued September 2023

This listing is subject to renewal in September 2024.

CSI: DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 57 00—Coated Foam Roofing

Product Certification System:

The ICC-ES product-certification system includes evaluating reports of tests of standard manufactured product, prepared by accredited testing laboratories and provided by the listee, to verify compliance with applicable codes and standards. The system also involves factory inspections, and assessment and surveillance of the listee's quality system.

Product: ENDURATECH® PREMIER ROOFING SYSTEM (COATED SPRAY POLYURETHANE FOAM ROOFING SYSTEM)

Listee: BARNHARDT MANUFACTURING CO. dba NCFI POLYURETHANES

Evaluation: The EnduraTech® Premier Roofing System consists of NCFI 10-011 spray polyurethane foam (SPF) plastic insulation covered with EnduraTech® R or EnduraTech® Q acrylic elastomeric coating. The roof covering system consists of the following components:

- **Spray Polyurethane Foam Plastic Insulation:**

- **General:** NCFI 10-011 plastic insulation as formulated has a density between 2.5 and 3.0 pcf (40 and 43 kg/m³). The liquid components (designated as component A and component B) are available in 55-gallon (208 L) containers and 275-gallon (1041 L) totes. The liquid components must be stored at temperatures between 70°F (21°C) and 90°F (32°C) for several days before application and must not be exposed to direct sunlight. The shelf life of NCFI 10-011 liquid components is six months in unopened containers.
- **Surface-burning Characteristics:** NCFI 10-011 plastic insulation has a flame-spread index of 25 or less for densities up to 3.0 pcf (43 kg/m³) when tested in accordance with UL 723 (ASTM E84) at a maximum thickness of 4 inches (102 mm).

- **Coatings:**

- **EnduraTech® R and EnduraTech® Q Acrylic Elastomeric Coatings:** EnduraTech® R (Standard) and EnduraTech® Q (Quickset) acrylic elastomeric coatings are single-component, liquid-applied, 100 percent acrylic coatings complying with ASTM D6083. The coatings are available in 5-gallon (19 L), 55-gallon (208 L) and 275-gallon (1041 L) totes, and have a shelf life of 12 months when stored in factory-sealed containers at temperatures between 60°F (15.5°C) and 110°F (44°C).

The EnduraTech® Premier Roofing Systems were evaluated when tested in accordance with the following standards:

- ASTM E108 (-16, -11, and -07a), Standard Test Methods for Fire Tests of Roof Coverings, ASTM International.
- UL 790 (-04 with revisions through July 2014, -04 with revisions through October 2008, and -04), Standard Test Methods for Fire Tests of Roof Coverings, Underwriters Laboratories, Inc.

Findings: The roof covering systems are classified as Class A or Class B as listed under Table 1, when installed over either noncombustible (concrete or metal) or wood substrates and as described in Table 1. Roof classifications are based on testing in accordance with ASTM E108 / UL 790, as referenced in the applicable sections of the following code editions below:

- 2018, 2015, 2012 and 2009 *International Building Code*®
Applicable Section: 1505.1
- 2018, 2015, 2012 and 2009 *International Residential Code*®
Applicable Section: R902.1

Identification:

1. Containers of NCFI 10-011 liquid components are labeled with the manufacturing date, the NCFI Polyurethanes name and address, the product name (NCFI 10-011), component type (A or B), the lot numbers, the flame spread index, and the evaluation report number (ESR-3392) and / or ICC-ES listing number (ESL-1460), and when applicable, the ICC-ES listing mark.
2. Containers of EnduraTech® R and EnduraTech® Q liquid-applied coatings are labeled with the NCFI Polyurethanes name and address, the product name, the lot number, the evaluation report number (ESR-3392) and / or ICC-ES listing number (ESL-1460), and when applicable, the ICC-ES listing mark.
3. The report holder’s contact information is the following:
BARNHARDT MANUFACTURING CO. dba NCFI POLYURETHANES
POST OFFICE BOX 1528
MOUNT AIRY, NORTH CAROLINA 27030
(800) 346-8229
www.ncfi.com

Installation: The system must be installed in accordance with NCFI Polyurethanes’ published installation instructions and applicable codes.

Conditions of listing:

1. Additional attributes and their applications can be found in the ICC-ES Evaluation Report, ESR-3392.
2. The listing report addresses only conformance with the standards and code sections noted above.
3. Approval of the product’s use is the sole responsibility of the local code official.
4. The listing report applies only to the materials tested and as submitted for review by ICC-ES.
5. The NCFI 10-011 plastic insulation is manufactured in Mount Airy, North Carolina, and Clearfield, Utah, under a quality control program with inspections by ICC-ES.

EnduraTech® R and EnduraTech® Q acrylic elastomeric coatings are manufactured in Scottsdale, Arizona, under a quality control program with inspections by ICC-ES.

TABLE 1—ENDURATECH® PREMIER ROOF COVERING SYSTEM FIRE CLASSIFICATION

| SYSTEM NO. ¹ | ROOF DECK TYPE | FOAM PLASTIC INSULATION | | COATING | | TOP SURFACING | MAXIMUM ROOF SLOPE | ROOF CLASSIFICATION |
|-------------------------|------------------------------|-------------------------|----------------------------|--------------------|--|---------------------------------------|--------------------|---------------------|
| | | Product Designation | Minimum Thickness (inches) | Type | Application Rate | | | |
| 1 | Noncombustible | 10-011 | 1 | EnduraTech® R or Q | Two applications at 1.75–1.85 gal/sq./coat | None | 1:12 | A |
| 2 | Noncombustible | 10-011 | 1 | EnduraTech® R or Q | 3.7 gal/sq., maximum | No. 11 roofing granules at 45 lbs/sq. | 4:12 | A |
| 3 | Minimum 15/32" thick plywood | 10-011 | 1.5 | EnduraTech® R or Q | 3.7 gal/sq., maximum | No. 11 roofing granules at 45 lbs/sq. | 1/2:12 | B |

For SI: 1 inch = 25.4 mm.

¹ Roof covering systems may be applied over an existing uninsulated roof covering without changing the existing roof covering’s fire classification.

DIVISION: 07 00 00 - THERMAL AND MOISTURE PROTECTION
Section: 07 21 00 - Thermal Insulation
Section: 07 21 19 – Foamed-In-Place Insulation

REPORT HOLDER:

Barnhardt Manufacturing Co. dba NCFI Polyurethanes
1515 Carter Street
P.O. Box 1528
Mount Airy, NC 27030
USA
(800) 346-8229
<http://ncfi.com/>

REPORT SUBJECT:

**InsulStar®Light 12-008 and InsulStar®Light 12-075 Spray
Foam Systems**

1.0 SCOPE OF EVALUATION

1.1 This Research Report addresses compliance with the following Codes:

- 2021, 2018 and 2015 *International Building Code*® (IBC)
- 2021, 2018 and 2015 *International Residential Code*® (IRC)
- 2021, 2018 and 2015 *International Energy Conservation Code*® (IECC)

NOTE: This report references the most recent Code edition noted. Section numbers for earlier Code editions may differ.

1.2 InsulStar®Light 12-008 InsulStar®Light 12-075 have been evaluated for the following properties (see Table 1):

- Physical properties
- Surface burning characteristics
- Thermal resistance (R-value)
- Air permeability
- Moisture vapor permeability

1.3 InsulStar®Light 12-008 and InsulStar®Light 12-075 have been evaluated for the following uses (see Table 1):

- Use as nonstructural thermal insulation material on or in interior and exterior walls, floors, ceilings and the underside of roof decks
- Alternatives to thermal barriers
- Alternatives to ignition barriers
- Use in Type I, II, III, and IV construction under the IBC
- Use in Type V construction under the IBC and buildings regulated under the IRC
- Use as air-impermeable insulation

2.0 STATEMENT OF COMPLIANCE

InsulStar®Light 12-008 and InsulStar®Light 12-075 comply with the Codes listed in Section 1.1, for the properties stated in Section 1.2 and uses stated in Section 1.3, when installed as described in this report, including the Conditions of Use stated in Section 6.

3.0 DESCRIPTION

3.1 InsulStar®Light 12-008 and InsulStar®Light 12-075: The insulations are two-component, low-density, open-cell, spray-applied polyurethane foam insulation. They are produced in the field by combining an isocyanate (A-component), A2-000, with a proprietary resin (B-component). InsulStar®Light 12-008 has a nominal density of 0.5 pounds per cubic foot. InsulStar®Light 12-075 has a nominal density of 0.75 pounds per cubic foot. The insulation components are supplied in factory-sealed containers. The resin (B-component) has a shelf life of six months when stored in factory-sealed containers at temperatures between 40°F and 85°F.

3.2 DC315: DC315 intumescent coating is a single-component, water-based, liquid-applied coating, manufactured by International Fireproof Technology Inc. The coating is supplied in 5-gallon pails and 55-gallon drums, and has a shelf life of twenty-four months when stored in factory-sealed containers at temperatures between 41°F and 95°F. DC315 complies with ICC-ES AC456 and is recognized in ICC-ES ESR-3702 and IAPMO-UES ER-0499.



4.0 PERFORMANCE CHARACTERISTICS

4.1 Surface Burning Characteristics: The insulations, at a maximum thickness of 4 inches, have a flame-spread index of 25 or less and a smoke-developed index of 450 or less, when tested in accordance with ASTM E84. The insulations can be installed at greater thicknesses as described in Sections 5.3 through 5.5. When the insulation is separated from the interior occupied space of the building with minimum 1/2-inch-thick gypsum board or a thermal barrier complying with NFPA 275, the maximum insulation thickness is not limited. Under the IRC, a thermal barrier of minimum 23/32-inch-thick wood structural panel is also permitted, and the maximum insulation thickness is not limited.

4.2 Thermal Resistance (R-value): The insulations have a thermal resistance (R-value), at a mean temperature of 75°F, as shown in Table 2.

4.3 Air Permeability: The insulations, at a minimum thickness of 4 inches, are considered air-impermeable insulation in accordance with IBC and IRC Sections 202 and R202, respectively, based on testing in accordance with ASTM E2178.

4.4 Moisture Vapor Permeability: The insulations, at a minimum thickness of 2.8 inches, qualify as Class III vapor retarders based on testing in accordance with ASTM E96, Procedure A (Desiccant Method).

5.0 INSTALLATION

5.1 General: The insulations must be installed in accordance with the manufacturer's published installation instructions, the applicable Code, and this Research Report. A copy of the manufacturer's instructions must be available on the jobsite during installation. The installation requirements in Sections 5.1 through 5.4 apply to all Types of construction.

5.2 Application: The insulations are spray-applied on the jobsite using plural-component metering and processing equipment as recommended in the manufacturer's published installation instructions. The insulations must be applied when the ambient and substrate temperature is

between 50°F and 120°F. Refer to the manufacturer's application instructions for further information.

The insulations must not be used in areas that have a maximum in-service temperature greater than 180°F. The insulations must not be used in electrical outlet or junction boxes, or in contact with water, rain, or soil. The foam plastic must not be sprayed onto a substrate that is wet or covered with frost, ice, loose scale, rust, oil, or grease. The insulations must be protected from the weather during and after application. The insulations may be applied in multiple passes, with each pass not to exceed the maximum individual pass thickness stated in the manufacturer's installation instructions. Allow for full expansion of the previous pass before applying an additional pass. Where the insulations are used as an air-impermeable insulation, such as in unvented attic assemblies under IBC Section 1202.3 and IRC Section R806.5, the insulation must be installed at a minimum thickness of 4 inches to achieve air-impermeability.

5.3 Thermal Barrier:

5.3.1 Application with a Prescriptive Thermal Barrier: The insulations must be separated from the interior of the building by an approved thermal barrier of 1/2-inch-thick gypsum wallboard, or an approved equivalent 15-minute thermal barrier complying with IBC Section 2603.4 or IRC Section R316.4.

Exceptions: The prescriptive thermal barrier is not required under the following conditions:

- When the insulation is used in sill plates and headers or in perimeter joist spaces at no more than 3-1/4 inches thickness as permitted by IRC Section R316.5.11
- When the insulation is used in an attic or crawl space as described in Section 5.4.

When the insulations are separated from the interior living space of the building with minimum 1/2-inch-thick gypsum board or a thermal barrier complying with NFPA 275, the maximum thickness of insulation is not limited. Under the IRC, a thermal barrier of minimum 23/32-inch-thick wood structural panel is also permitted, and the maximum insulation thickness of insulation is not limited.



**5.3.2 Application without a Prescriptive Thermal Barrier:**

The insulations may be installed without the 15-minute thermal barrier prescribed in the IBC Section 2603.4 and IRC Section R316.4, as described in this section and Table 3. The insulations may be spray-applied to the interior surface of walls, the underside of roof sheathing, and in crawl spaces, provided the assembly conforms to one of the assemblies described in Table 3. The insulations and coating may be left exposed as an interior finish without the prescriptive thermal or ignition barrier in assemblies as indicated in Table 3.

When an intumescent coating is used, it must be applied to all surfaces in accordance with the respective coating manufacturer's installation instructions. The coating must be applied when ambient and substrate temperatures are above 50°F, unless otherwise permitted by the coating manufacturer's installation instructions. Surfaces to be coated must be clean, dry, and free of loose dirt, loose debris, and any other substances that could interfere with the adhesion of the coating.

5.4 Attics and Crawl Spaces: The insulations may be applied in attics and crawl spaces as described in either Section 5.4.1 or 5.4.2. When foam insulation is installed in an attic or crawl space in accordance with this section, a thermal barrier, as described in Section 5.3.1, is not required between the foam plastic insulation and the attic or crawl space but is required between the insulation and the interior occupied space. Attics and crawl spaces must be vented in accordance with the applicable Code, except as permitted in Sections 5.4.1, 5.4.2, or 5.4.3, as applicable.

5.4.1 Application with a Prescriptive Ignition Barrier:

Where the insulations are installed within attics or crawl spaces, and where entry is made only for service of utilities, an ignition barrier must be installed in accordance with IBC Section 2603.4.1.6 or IRC Sections R316.5.3 and R316.5.4, as applicable. The ignition barrier must be consistent with the requirements for the type of construction required by the applicable Code and must be installed in a manner so that the foam plastic insulation is not exposed. The insulations, as specified in this section, may be installed in unvented attics and unvented enclosed rafter assemblies in accordance with IBC Section 1202.3 or IRC Section R806.5.

5.4.2 Application without a Prescriptive Ignition Barrier:

The insulations may be installed in attics and crawl spaces, as described in this section and Table 4, without the ignition barrier prescribed in IBC Section 2603.4.1.6, and IRC Sections R316.5.3 and R316.5.4, subject to the following conditions:

- a. Entry to the attic or crawlspace is only to service utilities and no storage is permitted.
- b. There are no interconnected attic or crawl space areas.
- c. Air in the attic is not circulated to other parts of the building.
- d. Attic ventilation is provided when required by IBC Section 1203.2 or IRC Section R806.1, as applicable, except when insulation is permitted in unvented attics in accordance with IBC Section 1202.3, or IRC Section R806.5.
- e. Under-floor (crawl space) ventilation is provided in accordance with IBC Section 1202.4 or IRC Section R408.1, as applicable.
- f. Combustion air is provided in accordance with IMC (International Mechanical Code®) Section 701.

In attics, the insulations may be spray-applied to the underside of roof sheathing or roof rafters, and/or vertical surfaces, provided the assembly conforms to one of the assemblies described in Table 4. In crawl spaces, the insulations may be spray-applied to the underside of floors and/or vertical surfaces provided the assembly conforms to one of the assemblies described in Table 4.

When an intumescent coating is used, it must be applied to all surfaces in accordance with the respective coating manufacturer's installation instructions. The coating must be applied when ambient and substrate temperatures are above 50°F, unless otherwise permitted by the coating manufacturer's installation instructions. Surfaces to be coated must be clean, dry, and free of loose dirt, loose debris, and any other substances that could interfere with the adhesion of the coating.

The insulations may be installed in unvented attics as described in this section and in accordance with IBC Section 1202.3 or IRC Section R806.5.

5.4.2.1 Use on Attic Floors: The insulations may be installed between and over joists in attic floors in accordance with this section, conditions a. through f. of





Section 5.4.2, and Table 4 based on testing in accordance with AC377, Appendix X. The insulations must be separated from the interior of the building by an approved thermal barrier. The ignition barrier required in IBC Section 2604.4 and IRC R316.5.3 may be omitted.

Exception: If installed in the attic floor only, the ignition barrier required in IBC Section 2604.4 and IRC R316.5.3 may be omitted and the InsulStar®Light 12-008 insulation may be left fully exposed with no covering up to a maximum thickness of 14 inches, based on testing in accordance with ASTM E970 and NFPA 286. The insulation must be separated from the interior occupied space of the building by an approved thermal barrier.

5.4.3 Unvented Attics (InsulStar®Light 12-008): NCFI has conducted end-use configuration testing (per IBC Section 2603.9 and IRC Section R316.6) and analysis to qualify the use of InsulStar®Light 12-008 insulation without a prescriptive ignition barrier or intumescent coating in unvented attics conforming with IBC Section 1202.3 or IRC Section R806.5. The testing and analysis are described in Priest & Associates EEV 10656B, dated February 27, 2019. The conclusions of that evaluation (and associated Engineering Letters) are as follows: When InsulStar®Light 12-008 is applied in unvented attics conforming to IBC Section 1202.3 or IRC Section R806.5 the insulation may be applied to the underside of roof sheathing and/or rafters, and to vertical surfaces to a minimum thickness of 4 inches. Rafters may be left without insulation coverage or may be covered with the insulation up to the maximum thickness permitted. The maximum thickness on the underside of roof sheathing or on vertical wall surfaces is 16 inches. The insulation may be left exposed to the attic without a prescriptive ignition barrier or an intumescent coating. The attic must have attic access complying with IRC Section R807, horizontally placed in the attic floor and opening outward toward the living space. For items penetrating the roof deck or walls, such as skylight wells or vents, the annular space and penetrating item must be covered with a minimum of 3 inches of NCFI 12-008 insulation.

5.5 Exterior Walls of Type I, II, III, and IV Construction: The insulation may be installed in framed cavities of exterior walls of buildings of Type I, II, III, and IV construction complying with IBC Section 2603.5 and as described in this section.

5.5.1 Potential Heat: The maximum potential heat of insulation in the wall assembly is 7,210 Btu/ft² based on full-scale testing in accordance with NFPA 285. The potential heat of the InsulStar®Light 12-008 insulation is 506 Btu/ft² per inch of thickness. The potential heat of the InsulStar®Light 12-075 insulation is 759 Btu/ft² per inch of thickness. Tested wall assemblies were extended through engineering analysis to include additional wall constructions described in Table 5.

6.0 CONDITIONS OF USE

6.1 Installation must comply with this Research Report, the manufacturer's published installation instructions, and the applicable Code. In the event of a conflict, this report governs.

6.2 The insulations must be separated from the interior occupied space of the building by an approved 15-minute thermal barrier, as described in Section 5.3.1, except as described in Section 5.3.2 and Section 5.4.

6.3 The insulation thickness must not exceed that noted in Sections 4.1, 5.3, 5.4, and 5.5 as applicable.

6.4 The insulations must be applied by professional spray polyurethane foam installers approved by NCFI Polyurethanes or certified by the Spray Polyurethane Foam Alliance (SPFA) for the installation of spray polyurethane foam insulation.

6.5 The insulations must be protected from the weather during and after installation as specified in the manufacturer's installation instructions.

6.6 A vapor barrier must be installed when required by the applicable Code.

6.7 When InsulStar®Light 12-008 is installed under the conditions of Section 5.4.3 of this report, the following conditions apply:

6.7.1 Since the performance of InsulStar®Light 12-008, when installed in unvented attics without a Code-prescribed ignition barrier or an intumescent coating, is based on fire performance of an unvented attic, the installation must be approved by the Code Official. The installation must





conform with the provisions of Section 5.4.3, and conditions a. through f. of Section 5.4.2. A copy of the Priest & Associates Consulting LLC Engineering Evaluation (referenced in Sections 5.4.3 and 7.4) must be provided to the Code Official upon request.

6.7.2 Signage shall be permanently affixed in the attic and shall be visible from all points within the attic. The signage shall state, "*Caution, this is an unvented attic by design. No modification may be made to this unvented condition. The attic shall not be vented. Holes into the unvented attic shall be immediately repaired and sealed. Penetrations of the ceiling or wall membrane between the unvented attic and living space, other than the horizontal access hatch, must be protected in an approved manner. This unvented attic shall not be used for storage. See Intertek Code Compliance Research Report CCRR-0323 on the [Intertek website](#).*"

6.8 Use of the insulations in areas where the probability of termite infestation is "very heavy" must be in accordance with IBC Section 2603.8 or IRC Section R318.4, as applicable.

6.9 Jobsite certification and labeling of the insulations must comply with IRC Section N1101.10, N1101.14 and IECC Section C303.1 or R303.1 and R401.3, as applicable.

6.10 The InsulStar®Light 12-008 is manufactured under a quality control program with inspections by Intertek Testing Services NA, Inc.

7.0 SUPPORTING EVIDENCE

7.1 Reports of tests in accordance with ASTM C518, ASTM E84, ASTM E970, ASTM E2178, NFPA 259, NFPA 285, and NFPA 286.

7.2 Data in accordance with the ICC-ES Acceptance Criteria for Spray-Applied Foam Plastic Insulation (AC377), dated February 2020; including reports of tests in accordance with Appendix X.

7.3 Data in accordance with ICC 1100 (2019).

7.4 Research Reports for evaluation of data in accordance with ICC-ES Acceptance Criteria for Fire-protective Coatings Applied to Spray-applied Foam Plastic Insulation Installed

without a Code-prescribed Thermal Barrier (AC456), dated October 2015 (Editorially Revised July 2018).

7.5 Priest & Associates Consulting, LLC, Engineering Evaluation - For Inclusion of *NCFI Polyurethane's 12-008 SPF* Insulation in Unvented Attics without and Ignition Barrier in an Intertek CCRR, Project No. 10656B, dated February 27, 2019.

7.6 Jensen Hughes Letter regarding Project Number 1JJB00035.000 - Various NFPA 285 Complying Exterior Wall Constructions, dated July 05, 2016.

7.7 Jensen Hughes Letter regarding Project Number 1JJB00035.000 - Technical Justification for Alternate Exterior Wall Constructions Incorporating Various NCFI's Spray Polyurethane Foam Plastic Insulation, dated July 18, 2016.

7.8 Jensen Hughes Letter regarding Project Number 1JJB00035.000 - Various NFPA 285 Complying Exterior Wall Constructions, dated October 04, 2018.

7.9 Jensen Hughes Letter regarding Project Number 1JJB00035.000 - Analysis of Sealite™ (ID No. 12-008) for Use in NFPA 285 Complying Exterior Wall Assemblies, dated October 04, 2018.

7.10 Intertek Listing Report "[NCFI 12-008 and 12-075](#)", on the [Intertek Directory of Building Products](#).

8.0 IDENTIFICATION

The InsulStar®Light 12-008 and InsulStar®Light 12-075 are identified with the manufacturer's name (NCFI Polyurethanes), address and telephone number, the product name, flame spread index, smoke developed index, lot number, the Intertek Mark as shown below, and the Code Compliance Research Report number (CCRR-0323).





9.0 OTHER CODES

This section is not applicable.

10.0 CODE COMPLIANCE RESEARCH REPORT USE

10.1 Approval of building products and/or materials can only be granted by a building official having legal authority in the specific jurisdiction where approval is sought.

10.2 Code Compliance Research Reports shall not be used in any manner that implies an endorsement of the product by Intertek.

10.3 Reference to the <https://bpdirectory.intertek.com> is recommended to ascertain the current version and status of this report.

This Code Compliance Research Report (“Report”) is for the exclusive use of Intertek’s Client and is provided pursuant to the agreement between Intertek and its Client. Intertek’s responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this Report. Only the Client is authorized to permit copying or distribution of this Report and then only in its entirety, and the Client shall not use the Report in a misleading manner. Client further agrees and understands that reliance upon the Report is limited to the representations made therein. The Report is not an endorsement or recommendation for use of the subject and/or product described herein. This Report is not the Intertek Listing Report covering the subject product and utilized for Intertek Certification and this Report does not represent authorization for the use of any Intertek certification marks. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek.





TABLE 1 - PROPERTIES EVALUATED

| PROPERTY | 2021 IBC SECTION ¹ | 2021 IRC SECTION ¹ | 2021 IECC SECTION ¹ |
|--|-------------------------------|-------------------------------|--------------------------------|
| Physical properties | 2603.1.1 | Not Required | Not Required |
| Surface-burning characteristics | 2603.3 | R316.3 | Not Applicable |
| Alternatives to thermal / ignition barrier | 2603.4 | R316.4 R316.5 | Not Applicable |
| Thermal resistance | 1301 | N1101.10 N1102 | C303.1 R303.1 |
| Air permeability / air barrier | 1202.3 | R806.5 | C402.4 |
| Exterior walls of Type I - IV Construction | 2603.5 | Not Applicable | Not Applicable |

¹ Section numbers may be different for earlier versions of the International Codes.



TABLE 2 - THERMAL RESISTANCE (R-value)^{1, 2, 3}

| THICKNESS (inches) | NCFI 12-008 | NCFI 12-075 |
|--------------------|-------------------------------------|-------------------------------------|
| | R-VALUE (°F.ft ² .h/Btu) | R-VALUE (°F.ft ² .h/Btu) |
| 1 | 3.7 | 4.0 |
| 2 | 7.6 | 8.0 |
| 3 | 11 | 12 |
| 3.5 | 13 | 14 |
| 4 | 15 | 16 |
| 5 | 19 | 20 |
| 5.5 | 21 | 22 |
| 6 | 23 | 24 |
| 7 | 27 | 28 |
| 7.25 | 28 | 29 |
| 8 | 31 | 32 |
| 9 | 34 | 36 |
| 9.25 | 35 | 37 |
| 10 | 38 | 40 |
| 11 | 42 | 44 |
| 11.25 | 43 | 45 |
| 12 | 46 | 48 |
| 13 | 50 | 52 |
| 14 | 54 | 56 |
| 15 | 57 | 60 |
| 16 | 61 | 64 |

¹ R-values are calculated based on tested k-factors at 1 inch and 4 inches thicknesses.

² R-values less than 10 are rounded to the nearest 0.1 unit; greater than 10 are rounded to the nearest whole unit.

³ To determine R-values for thicknesses not listed: between 1 inch and 4 inches can be determined through linear interpolation or greater than 4 inches can be calculated on R = 3.8/inch for NCFI 12-008 and R = 3.95/inch for NCFI 12-075.





TABLE 3 - USE OF INSULATION WITHOUT A PRESCRIPTIVE THERMAL BARRIER

| INSULATION TYPE | MAXIMUM THICKNESS (in.) (Wall Cavities) | MAXIMUM THICKNESS (in.) (Underside of Roof Sheathing / Rafters and Floors) | INTUMESCENT COATING, MINIMUM THICKNESS (Applied to all Exposed Foam Surfaces) | MINIMUM APPLICATION RATE OF INTUMESCENT COATING | MAY BE LEFT EXPOSED AS AN INTERIOR FINISH | TEST SUBMITTED (AC377) |
|-----------------|---|--|---|---|---|------------------------|
| NCFI 12-008 | 8 | 14 | DC315 14 wet mils (9 dry mils) | 0.9 gal / 100 ft ² | Yes | NFPA 286 |
| NCFI 12-075 | 5.3 | 9.3 | DC315 14 wet mils (9 dry mils) | 0.9 gal / 100 ft ² | Yes | Evaluation |

TABLE 4 - USE OF INSULATION WITHOUT A PRESCRIPTIVE IGNITION BARRIER

| INSULATION TYPE | MAXIMUM THICKNESS (in.) (Wall Cavities and Attic Floors) | MAXIMUM THICKNESS (in.) (Underside of Roof Sheathing / Rafters and Floors) | INTUMESCENT COATING, MINIMUM THICKNESS (Applied to all Exposed Foam Surfaces) | MINIMUM APPLICATION RATE OF INTUMESCENT COATING | TEST SUBMITTED (AC377) |
|-----------------|--|--|---|---|------------------------|
| NCFI 12-008 | 8 | 14 | DC315 7 wet mils (4 dry mils) | 0.5 gal / 100 ft ² | Appendix X |
| NCFI 12-075 | 5.3 | 9.3 | DC315 7 wet mils (4 dry mils) | 0.5 gal / 100 ft ² | Evaluation |



TABLE 5 - NFPA 285 COMPLYING WALLS - NCFI 12-008 OR 12-075 IN FRAMED CAVITIES OF EXTERIOR WALLS

| Wall Component | Materials |
|---|---|
| Base Wall System – Use either 1, 2, or 3 | 1 – One layer of 5/8-inch-thick Type X exterior gypsum sheathing installed on the exterior side of steel studs of minimum 3-5/8-inch depth and minimum 20 GA thickness spaced at maximum 24-inches on center and with lateral bracing every 4 ft. 2 – Concrete wall – minimum 2 inches thick 3 – Concrete masonry wall |
| Floorline Firestopping – | 4 pcf mineral wool friction-fit in each wall stud cavity at each floorline. Mineral wool not required in stud cavities at floorlines when infill studwall ¹ construction is employed for exterior wall construction. |
| Cavity Insulation – Use either 1, 2, or any combination of 2 and 3 | 1 – None 2 – Full cavity depth or less of NCFI 12-008 or 12-075 using either the cavity side of the exterior sheathing or concrete or masonry as the substrate and covering the width of the cavity and inside the stud flange. 3 – Any noncombustible insulation (if batts, then either faced or unfaced is permitted) |
| Interior gypsum wallboard | Minimum 5/8-inch-thick Type X gypsum wallboard |
| Exterior Wall Covering – Use either 1, 2, 3, or 4. | 1 – Any noncombustible exterior wall covering material 2 – Any combustible exterior wall covering system that has successfully tested in accordance with NFPA 285 3 – Any combustible exterior wall covering system up to a maximum wall height of 40 ft. above grade plane. If the combustible material is fire retardant treated wood (FRTW), then the maximum wall height is 60 ft. above grade plane. 4 – For base wall 2 or 3, a covering is optional but not required. Use an exterior wall covering as described in 1, 2, or 3 of this section. |

1- Infill studwall construction refers to the condition where the stud framing of an exterior wall is interior to the floorline slab edges, effectively terminating the stud cavity at each floorline and creating section stud bays in between sequential floors.

SURF X FLUSH 2000™

Polyurethane Foam, Resin & Coating Remover

Polyurethane Foam, Resin & Coating Remover

ENVIRONMENTAL

- ⊕ Reduced VOC
- ⊕ Non-Flammable
- ⊕ Non-Hazardous
- ⊕ Non-Toxic
- ⊕ None of the Ingredients are listed California (Prop 65)
- ⊕ No SARA 311, 312, 313 Ingredients
- ⊕ Non HAPs
- ⊕ DOES NOT contain raw materials on the NJ Community Right to Know Environmental Hazardous Substance List
- ⊕ REACH Compliant

TYPICAL PROPERTIES

| | |
|--|--|
| Appearance: | Clear Amber Liquid |
| Flash Point: (Pensky-Martens closed cup) | 169 °F |
| Odor: | Mild Organic Ester |
| Surface Tension: | 24 (dynes/cm 24) (water = 1.0) |
| pH (50% solution in water @ 68°F) | 6.8 - 7.8 |
| Vapor Pressure: (components) | 0.20 - 0.90 mmHg @ 20 °C (68 °F) |
| Initial boiling point/ boiling range (@ 760 [mm Hg]) | 356 - 396 °F |
| Ideal Operating Temp (°F) | Room Temperature or maximum heated to 140 °F |
| Ideal Operating Concentration | Full Strength |
| Specific Gravity @ (68°F) | 0.980 - 0.984 |
| Weight/Gal. (lbs. /gal.) | 8.20 |
| VOC Content: (ASTM D-2369, Method 24) | 3.85 lbs./gal or 437 grams/liter |
| HMIS Rating: | Health = 2 Fire = 2 Reactivity = 0 |
| Product # | 02-WI89568 |

SURF X FLUSH 2000™ is a highly effective **cleaning solution** that can be used for **Flushing, Low-Pressure Spray, and Immersion cleaning** to remove build-up of Hardened ISO (A) lines and hoses, as well as overspray. It has the ability to dissolve polyurethane foam, flexible and rigid elastomer, and molded polyurethane foam. This cleaning effectively cleans MDI and TDI esters, cured reactive hot melt, polyurethane adhesives, industrial adhesives, and mixtures of fiberglass and polyester resin, and vinylester and epoxy resin. **Maximum Flushing Time is (4) Hours. Do NOT leave SURF X FLUSH 2000™ in the system OVERNIGHT.**



Features & Benefits

- ⊕ High Resin/Polymer loading
- ⊕ Recyclable via vacuum distillation - Reduced disposal costs - Residue Free
- ⊕ **Replaces solvents such as NMP, BLO, Acetone, MEK, Methylene Chloride, PM Acetate and 1,1,1 Trichloroethane**
- ⊕ Low rate of evaporation
- ⊕ **Multi substrate - Safe** of most Ferrous and non-Ferrous Metals
- ⊕ **Compatible and Non Corrosive** on various metals, plastics, glass and ceramics

FLUSHING:

- ⇒ Use **FULL STRENGTH** at room temperature (**Do Not Heat this product while Flushing**).
- ⇒ Flush out the entire ISO (A) Line throughout the system by placing the Transfer Pump inside a pail containing 2 - 3 gallons of **SURF X FLUSH 2000™**.
- ⇒ Allow the transfer pump to pass the solvent throughout the system by recirculating until it runs clear (**Maxim (4) hours**) Once it runs clear, **do a final rinse with 2-3 gallons of NZD ISO FLUSH™**. Push the spent solvent and ISO mixture into a waste bucket. **DO NOT REUSE. MAXIMUM FLUSHING TIME IS (4) HOURS. DO NOT LEAVE OVERNIGHT.**
- ⇒ Once the system is free of Isocyanates, you are now ready to purge the system with a few quarts of Isocyanates and ready to spray away.
- ⇒ **STORE YOUR EQUIPMENT - Add Surfalube™ Equipment Storage Fluid** to the lines. Your equipment is ready for storage (up to 3 years).
- ⇒ **QUICK hand wipe applications**, use **SURF X FLUSH 2000™ GO GREEN™ Wipes**.

IMMERSION:

Use **FULL STRENGTH** at room temperature or a maximum temperature of **140 °F** for immersion cleaning of mixing heads, gear pumps, troughs, side walls, conveyor parts, rollers, molds, foam curing devices, holding tanks, feeding lines and mixing equipment.

**RECOMMENDED MATERIALS TO USE FOR:
O-Rings, Gaskets, Hoses and Pump Packaging**

Teflon
Butyl Rubber
Silicon Rubber
Klarez

Mild Steel
Halar
Melamine
Nylon 101

Polyethylene
Polypropylene
Ryton

Viton
ABS
Durel
Kynar

Phenolic
Polyurethane
PVC
Buna-N

MATERIAL TO AVOID

PET
Lexan
Valox
Polyester

Noryl EN-265
Noryl -73I
Polysulfone
Ultem

Lucite
Hypalon

PACKAGING & STORAGE

HDPE UN Rated

- 1 Gallon EasyPour Jugs
- 5 Gallon Pails
- 55 Gallon Steel Drums (closed cap)

GO GREEN™ Wipes
in an “Easy Carry Bucket”
(90 / 12" x 12" Polypropylene
Saturated Wipes)

Freight easily shipped via local
carriers ground or LTL.

This product should be kept in its
original container above freezing
and less than 100 °F.

Store drums in a dry area.

SAFETY & HANDLING PRECAUTIONS

Refer to SDS for additional safe handling & disposal

Direct contact of **SURF X FLUSH 2000™ Polyurethane Foam, Resin & Coating Remover will cause a mild skin irritation or serious eye irritation.** It is important to utilize recommended gloves (natural rubber), safety goggles and other suitable protective clothing your company recommends. Aspiration hazard if swallowed. Keep liquid and vapor away from heat, sparks and flames. Keep container closed. **Use product with adequate ventilation. Do Not take internally.** Keep out of reach of children. Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. Never give anything by mouth to an unconscious person Get medical advice/attention. **Refer to SDS Section 4 First Aid Measures**

DISPOSAL

Refer to SDS for additional safe handling & disposal

The spent material should not be disposed of in any sewerage system. Solutions containing hazardous or non-hazardous coatings and other soils should be handled and treated according to Federal, State and Local Environmental Laws. Discharge your waste and rinse water according to Federal, State and Local Regulations.



10 Eagle Avenue - Suite 500 - Mount Holly, NJ 08060
Phone: 609-518-7577 / Fax: 609-518-5277



Section 1: Product and Company Identification

Product Form: Mixture
Product Name: SURF X FLUSH 2000™ Polyurethane Foam /Resin Remover
Product #: 02-W249574
Intended Use of the Product: Commercial, Industrial and Professional use only. Use as directed

Manufacturer

Chemical Emergency Number: ChemTel: 1-800-255-3924

Global Specialty Products - USA, Inc.
 10 Eagle Avenue - Suite 500
 Mount Holly, New Jersey 08060
www.gsp-usa-inc.com
Telephone: 609-518-7577 Fax: 609-518-5277 Mon - Fri, 8am - 5 pm PST
Email: support@gsp-usa-inc.com

Section 2: Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200).

GHS Classification of the substance or mixture



Irritant

| | | Code | Category | Statement |
|-----------------------------|-----------------------------|------|----------|-------------------------------------|
| | Flammable Liquid | H227 | 4 | Combustible |
| | Acute Toxicity (Oral) | | 4 | Harmful if swallowed |
| Signal word: Warning | Acute Toxicity (Inhalation) | | 5 | May be harmful if inhaled |
| | Skin Irritation (Acute) | | 5 | May be harmful in contact with skin |
| | | | 3 | Causes mild skin irritation |
| | Eye Damage/Eye Irritation | | 2A | Causes serious eye irritation |

Precautionary Statements (GHS-US)

General Precautionary statements: P101: If medical advice is needed, have product container or label at hand; **P102:** Keep out of reach of children. **P103:** Read label before use.

Prevention Precautionary statements: P210: Combustible Liquid - Keep away from heat/sparks/open flames/hot surfaces. No smoking. **P260:** Do not breathe vapors, mist, or spray; **P261:** Avoid breathing dust/fume/gas/mist/vapors/spray; **P262:** Do not get in eyes, on skin, or on clothing; **P264:** Wash thoroughly after handling; **P270:** Do not eat, drink or smoke when using this product; **P271:** Use in a well ventilated area; **P272:** Contaminated work clothing must not be allowed out of the workplace; **P273:** Avoid release to the environment; **P280:** Wear protective clothing, protective gloves, eye protection.
P301+P330+P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor/physician. **P321** - See Section 4 on SDS (First aid measures) **P303+P313+P333+P353+P361+P363– IF ON SKIN (OR HAIR)** Take off immediately all contaminated clothing. Wash skin with plenty of soap and water. Wash contaminated clothing before re-use. If skin irritation or rash occurs: Get medical advice/attention. **P304+P340 - IF INHALED:** Remove person to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. **P305+P351+P338 IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. **P337 + P313** If eye irritation persists: Get medical advice/attention. **RESPONSE: P370 + P 378** - Use extinguishing media appropriate for surrounding fire; Water Spray, CO2, Dry Chemical, Foam. Unsuitable Extinguishing Media: Use of heavy stream of water may spread fire. **STORAGE: P402** - Store in a dry place. **P403 + P235** - Store in a well-ventilated place. Keep cool. Keep container tightly closed. Keep in original container. **DISPOSAL: P501** - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations. **See Section 13:** Disposal Considerations. **Other Hazards:** When heated above room temperature, vapors and mists may cause eye and respiratory tract irritation. Inhalation of high concentrations of vapors may cause central nervous system depression. Hot liquid can cause severe burns to the skin and eyes. Exposure may irritate the respiratory tract (nose, throat, and lungs). Exposure may irritate the respiratory tract (nose, throat, and lungs).

Section 3: Composition/Information on Ingredients

Mixture

| Name | Product Identifier CAS # | % (w/w) | Exposure Limits |
|------------------------------------|--------------------------|--------------|---|
| Dipropylene Glycol Monomethylether | 34590-94-8 | *Proprietary | NIOSH REL: : TWA 100 ppm (600 mg/m3) ST 150 ppm (900 mg/m3) [skin] OSHA PEL †: TWA 100 ppm (600 mg/m3) [skin] |
| 1,3-dioxolan-2-one, Methyl (PC) | 108-32-7 | *Proprietary | Not Available |

Contains no other hazardous components at 1% or more as listed or defined in 29 CFR 1910, Subpart Z. Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA. * The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret (29 CFR 1910.1200) This product contains other important & proprietary ingredients (co-solvents, wetting agents, corrosion inhibitor, rinsing agent, etc.). Due to the impurities contributed by some of the raw materials, this product contains a higher than allowable level of Selenium (10.9 Milligrams/Liter) (performed via an Independent Accredited Analytical Lab) established by U.S. Environmental Protection Agency. Other elements and metals including Arsenic, Barium, Cadmium, Chromium, Lead, Mercury and Silver regulated under the EPA RCRA are below the established PPM limits in this product. None of these RCRA Metals including Selenium are intentionally added to the formula. **California Prop 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section 4: First Aid Measures

Description of First Aid Measures

GENERAL: Never give anything to an unconscious person, If Exposed or Concerned; Get medical advice/attention immediately.

INHALATION: When symptoms occur remove to fresh air immediately. Keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a POISON CENTER, doctor or physician Immediately.

Ventilate suspected area.

SKIN CONTACT: Wear natural rubber gloves to protect your skin. Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice and attention Immediately. Wash contaminated clothing before reuse.

EYE CONTACT: This product is non-corrosive and water miscible. In case of eye contact, immediately flush eyes with plenty of water (for at least 15 minutes), remove contact lenses, if present and easy to do so. Continue rinsing until the irritation stops. Call a physician if the irritation persists.

INGESTION: If swallowed, rinse mouth do not induce vomiting. Get medical advice and attention. Never give anything by mouth to an unconscious person. **NOTE TO PHYSICIANS:** To prepare activated charcoal slurry suspend 50 g activated charcoal in 400 ml water in plastic bottle and shake well. Administer 5 ml/kg, or 350 ml for an average adult.

Most Important Symptoms and Effects Both Acute and Delayed

According To MSDSs supplied by the Raw Material Suppliers, the ingredients are moderate to strong skin and eye irritant. They may affect the central nervous system causing dizziness, headache or nausea. They may affect eye, skin and respiratory tract irritation. The product will be harmful if inhaled.

INHALATION: Moderate to strong hazard for usual Industrial handling.

INGESTION: Toxicity reports from raw material suppliers described from repeated exposure include weight gain, but there have been no pathological abnormalities noted. According to the suppliers of the raw materials in this product, the ingredients do not produce genetic damage in animals or in bacterial cell cultures, and do not have developmental or reproductive effects.

CARCINOGENS: None of the components in this product are listed by IARC, OSHA, NTP, EPA or ACGIH as a carcinogen.

SIGNS AND SYMPTOMS OF EXPOSURE: Skin irritation or dermatitis, eye irritation or Inflammation, pallor nausea, lack of coordination.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container or label at hand.

Date of issue: 10/18/2023

EN (English US)

SDS-02-W189568

2/11

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GSP

SURF X FLUSH 2000™ Polyurethane Foam/Resin Remover
Safety Data Sheet **Product #02-W189568** Version 11.0
according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.
Revision date: 10/18/2023 Supersedes: 05/06/2022 Date of issue: 10/18/2023

GLOBAL SPECIALTY PRODUCTS USA INC.

Section 5: Fire Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Water Spray, CO₂, Dry Chemical, Foam

Unsuitable Extinguishing Media: Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable - this product is Combustible

Explosion Hazard: Product is not explosive

Reactivity: Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids, Oxidizers or Reducing agents. Dangerous fire hazard when exposed to heat or flame.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire condition, hazardous fumes will be present.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Irritating or toxic vapors.

Special Fire Fighting Procedures: Keep personnel removed and upwind of fire. Firefighters should wear protective clothing to prevent contact with skin and eyes. Wear positive pressure self contained breathing apparatus

Reference to Other Sections - Refer to section 9 for flammability properties. Refer to section 16 for NFPA information.

Section 6: Accidental Release Measures

Steps To Take If Material Is Released/Spilled/Leaks

NOTE: Review Fire And Explosion Hazards and Safety Precautions before proceeding with clean up.

Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Remove source of heat, sparks, flame, impact, friction or electricity.

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Spilled material may present a slipping hazard.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions Prevent liquid from entering sewers, waterways or low areas. Recover free liquid for reuse or reclamation. Recover undamaged and minimally contaminated material for reuse or reclamation. Contact competent authorities after a spill.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Keep in suitable, closed containers for disposal.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

Section 7: Handling and Storage

Precautions for Safe Handling

Additional Hazards When Processed: Provide general ventilation. Where adequate ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls. If this material is handled under mist forming conditions, approved respiratory protection equipment should be used.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Container remains hazardous when empty. Continue to observe all precautions.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container tightly closed. Keep in original container.

Incompatible Materials: Strong Oxidizers. Reducing agents. Strong Acid.

Specific End Use(s): Commercial use. For professional use only.



GSP

SURF X FLUSH 2000™ Polyurethane Foam/Resin Remover

Safety Data Sheet **Product #02-W189568** Version 11.0

according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Revision date: 10/18/2023 Supersedes: 05/06/2022 Date of issue: 10/18/2023

GLOBAL SPECIALTY PRODUCTS USA INC.

Section 8: Exposure Controls/Personal Protection

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Exposure Controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Materials for Protective Clothing: Chemically resistant materials and fabrics (apron, boots or whole bodysuit made from butyl rubber, as appropriate)

Hand Protection: Wear chemically resistant protective gloves.

Eye / Face Protection: Safety glasses with side shields, or goggles, are recommended.

Insufficient ventilation: Wear respiratory protection.

Respirators - A NIOSH/MSHA approved air purifying respirator with a organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Section 9: Handling and Storage

| | |
|---|--|
| Appearance | Clear Liquid - Colorless to Slight Amber |
| Odor | Mild Organic Ester |
| Odor Threshold | N/A |
| pH (50% solution in water @ 68 °F): | 6.8 - 7.8 |
| Melting point/Freezing point | N/A |
| Initial boiling point and boiling range (@ 760 [mm Hg]) | 356 - 396 °F |
| Flash point | 169 °F Pensky Martins Closed Cup |
| Evaporation rate (nBuAc = 1.00) | 0.02 |
| Flammability (solid, gas) | N/A |
| Upper/lower flammability or explosive limits | N/A |
| Components Vapor pressure (@ 25 °C [mm Hg]) | 0.20 - 0.90 |
| Vapor density | N/A |
| Specific Gravity (@ 68 °F grams/ ml) | 0.980 - 0.984 |
| Solubility in Water | Completely Miscible |
| Partion coefficient: n-octanol/water; | N/A |
| Auto-ignition temperature | N/A |
| Decomposition temperature | N/A |
| Viscosity @68°F (water=1.0) | Water thin |
| Weight/Gallon | 8.2 (lbs. / gal.) |
| Normal Working Concentrations | Full Strength |
| Operating Temperature | Room Temperature or Maximum 140 °F |
| VOC Content (ASTM D-2369, Method 24) | 3.85 lbs./gal or 437 grams/liter |
| Recycling Parameters (Vacuum Distillation) | 300 °F and 27 mm Hg Pressure |

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GLOBAL SPECIALTY PRODUCTS USA INC.

SURF X FLUSH 2000™ Polyurethane Foam/Resin Remover

Safety Data Sheet **Product #02-W189568** Version 11.0

according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

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Section 10: Stability and Reactivity

Reactivity: Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids.

Chemical Stability: The product is stable at normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Moisture. Extremely high or low temperatures. Incompatible materials.

Incompatible Materials: Acids. Oxidizers. Reducing agents.

Hazardous Decomposition Products: Thermal decomposition generates: Carbon oxides (CO, CO2). Irritating or toxic vapors.

Section 11: Toxicological Information

Information on Toxicological Effects - Components

Dipropylene Glycol Monomethylether

CAS # 034590-94-8

Acute Toxicity

Ingestion

LD50, rat > 5,000 mg/kg

Dermal LD50, rabbit 9,510 mg/kg

Inhalation No deaths occurred at this concentration. LC50, 7 h, Vapor, rat 3.35 mg/l

Eye damage/eye irritation May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation Prolonged exposure not likely to cause significant skin irritation.

Sensitization Skin Did not cause allergic skin reactions when tested in humans.

Respiratory No relevant data found. Repeated Dose Toxicity Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Chronic Toxicity and Carcinogenicity For similar material(s): Did not cause cancer in laboratory animals.

Developmental Toxicity Did not cause birth defects or any other fetal effects in laboratory animals. Reproductive Toxicity For similar material(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology In vitro genetic toxicity studies were negative.

1,3-dioxolan-2-one, Methyl (PC)

CAS# 108-32-7

Acute Toxicity

Assessment of acute toxicity: Virtually nontoxic after a single ingestion. Virtually nontoxic after a single skin contact. The inhalation of a highly enriched/saturated vapor-air-mixture represents an unlikely acute hazard.

Oral

Type of value: LD50 Species: rat (male/female) Value: > 5,000 mg/kg (OECD Guideline 401) Limit concentration test only (LIMIT test). No mortality was observed.

Inhalation Species: rat (no data) Value: (IRT) Exposure time: 8 h . No mortality within the stated exposition time as shown in animal studies.

Dermal

Type of value: LD50 Species: rabbit (male/female) Value: > 2,000 mg/kg (OECD Guideline 402) Limit concentration test only (LIMIT test). No mortality was observed.

Assessment other acute effects Assessment of STOT single: Based on the available information there is no specific target organ toxicity to be expected after a single exposure.

Irritation / corrosion

Assessment of irritating effects: Not irritating to the skin. Eye contact causes irritation.

Skin Species: rabbit Result: non-irritant Method: Draize test

Eye Species: rabbit Result: Irritant. Method: OECD Guideline 405

Sensitization Assessment of sensitization: The substance did not cause skin sensitization in humans.

Patch-Test Species: human Result: Non-sensitizing. Method: Human patch test

Aspiration Hazard No aspiration hazard expected.



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Section 11: Toxicological Information (cont'd)

1,3-dioxolan-2-one, Methyl (PC) CAS# 108-32-7 (cont'd)

Chronic Toxicity/Effects

Repeated dose toxicity

Assessment of repeated dose toxicity: Repeated oral uptake of the substance did not cause substance-related effects. No adverse effects were observed after repeated inhalative exposure in animal studies. After repeated exposure the prominent effect is local irritation.

Genetic toxicity Assessment of mutagenicity: No mutagenic effect was found in various tests with microorganisms and mammalian cell culture. The substance was not mutagenic in a test with mammals.

Carcinogenicity

Assessment of carcinogenicity: Dermal exposure is not expected to be carcinogenic. Reproductive toxicity Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. No effects have been reported in reproductive organs in long term animal studies.

Reproductive toxicity

Assessment of reproduction toxicity: The results of animal studies gave no indication of a fertility impairing effect. No effects have been reported in reproductive organs in long term animal studies.

Teratogenicity

Assessment of teratogenicity: No indications of a developmental toxic / teratogenic effect were seen in animal studies.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11., Further symptoms are possible.

Medical conditions aggravated by overexposure

Data available do not indicate that there are medical conditions that are generally recognized as being aggravated by exposure to this substance/product. See MSDS section 11 - Toxicological information.

Section 12: Ecological Information

Information on Ecological Effects - Components

Dipropylene Glycol Monomethylether

CAS # 034590-94-8

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity LC50, Poecilia reticulata (guppy), static test, 96 h: > 1,000 mg/l

Aquatic Invertebrate Acute Toxicity LC50, Daphnia magna (Water flea), static test, 48 h, lethality: 1,919 mg/l LC50, Crangon crangon (shrimp), semi-static test, 96 h: > 1,000 mg/l

Aquatic Plant Toxicity ErC50, Pseudokirchneriella subcapitata (green algae), static test, biomass growth inhibition, 96 h: > 969 mg/l

Aquatic Invertebrates Chronic Toxicity Value Daphnia magna (Water flea), flow-through test, 22 d, NOEC: > 0.5 mg/l, LOEC: > 0.5 mg/l

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% biodegradation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests: Biodegradation Exposure Time Method 10 Day Window 75 % 28 d OECD 301F Test pass

Indirect Photodegradation with OH Radicals Rate Constant Atmospheric Half-life Method 5.00E-05 cm³/s 3.4 - 10.4 h Estimated.

Biological oxygen demand (BOD): BOD 5 BOD 10 BOD 20 BOD 28 0 % 0 % 31.6 %

Chemical Oxygen Demand: 2.02 mg/mg

Theoretical Oxygen Demand: 2.06 mg/mg Bioaccumulative potential Bioaccumulation:

Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 1.01 Measured

Mobility in soil

Mobility in soil: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): 0.28 Estimated.

Henry's Law Constant (H): 1.6E-07 atm*m³/mole; 25 °C Estimated.

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Section 12: Ecological Information (cont'd)

Information on Ecological Effects - Components

1,3-dioxolan-2-one, Methyl (PC)

CAS# 108-32-7

Toxicity

Aquatic toxicity

Assessment of aquatic toxicity:

There is a high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.

Toxicity to fish:

LC50 (96 h) > 1,000 mg/l, Cyprinus carpio (Directive 92/119/EEC, C. 1, semistatic) The details of the toxic effect relate to the nominal concentration.

Aquatic invertebrates:

EC50 (48 h) > 1,000 mg/l, Daphnia magna (OECD Guideline 202, part 1, static) The details of the toxic effect relate to the nominal concentration.

Aquatic plants:

EC50 (72 h) > 900 mg/l (growth rate), Desmodium subspicatum (OECD Guideline 201, static) The statement of the toxic effect relates to the analytically determined concentration.

Chronic toxicity to fish:

Study scientifically not justified.

Chronic toxicity to aquatic invertebrates:

Study scientifically not justified. Assessment of terrestrial toxicity Study scientifically not justified.

Microorganisms/Effect on activated sludge

Toxicity to microorganisms:

DIN 38412 Part 8 aquatic bacterium/EC10 (16 h): 7,400 mg/l Persistence and degradability

Assessment biodegradation and elimination (H2O):

Readily biodegradable (according to OECD criteria).

Elimination information

90 - 100 % DOC reduction (14 d) (OECD 301 A (new version)) (aerobic, activated sludge, domestic)

Assessment of stability in water:

Study scientifically not justified.

Bioaccumulative potential

Assessment bioaccumulation potential

Because of the n-octanol/water distribution coefficient (log Pow) accumulation in organisms is not to be expected.

Bioaccumulation potential:

Study scientifically not justified.

Mobility in soil

Assessment transport between environmental compartments

The substance will slowly evaporate into the atmosphere from the water surface. Adsorption to solid soil phase is not expected.

Additional information:

Absorbable organically-bound halogen (AOX):

This product contains no organically-bound halogen.

Other Eco toxicological advice:

Do not release untreated into natural waters.



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Section 13: Disposal Considerations

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations. **Waste characterizations and compliance with applicable laws are solely the responsibility of the waste generator**

Section 14: Transport Information

| | |
|----------------------------|---|
| Proper Shipping Name: | SURF X FLUSH 2000™ Polyurethane Foam/Resin Remover |
| DOT Identification Number: | Class 70 |
| NMFC Number: | 4858003 |
| Land DOT Hazard Class: | Combustible Liquid (No ODCs, NON-FLAMMABLE, NON-CORROSIVE, WATER-MISCIBLE) |
| Hazardous Ingredients: | See Section I, VI and Section IX |
| In Accordance with IMDG | Not regulated for transport |
| In Accordance with IATA | Not regulated for transport |
| In Accordance with TDG | Not regulated for transport |

Section 15: Regulatory Information

OSHA Hazard Communication Standard
Dipropylene Glycol Monomethylether CAS # 34590-94-8

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312 Immediate (Acute) Health Hazard; Yes

Delayed (Chronic) Health Hazard; No

Fire Hazard; Yes

Reactive Hazard; No

Sudden Release of Pressure Hazard; No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986)

Section 313:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Component:

Dipropylene glycol monomethyl ether **CAS # 34590-94-8 Amount > 99.0 %**

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.



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Section 15: Regulatory Information (cont'd)

OSHA Hazard Communication Standard

Dipropylene Glycol Monomethylether cont'd

CAS # 34590-94-8

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

This product contains one or more substances which are not listed on the Canadian Domestic Substances List (DSL).

1,3-dioxolan-2-one, Methyl (PC)

CAS# 108-32-7

OSHA Hazards: Moderate eye irritant

WHMIS Classification: D2B : Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material **does not contain** any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity:

This material **does not contain** any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Acute Health Hazard

SARA 302: SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313:

This material **does not contain** any chemi-cal components with known CAS numbers that exceed the threshold (De Minimis) reporting levels estab-lished by SARA Title III, Section 313.

Clean Air Act

This product **does not contain** any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product **does not contain** any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product **does not contain** any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. Clean-Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know: 108-32-7 Propylene carbonate 90 - 100%

New Jersey Right To Know: 108-32-7 Propylene carbonate 90 - 100%

California Prop 65: This product **does not contain** any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.



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Section 15: Regulatory Information (cont'd)

The components of this product are reported in the following inventories:

| | |
|---|--|
| United States TSCA Inventory: | y (positive listing)(On TSCA Inventory) |
| Canadian Domestic Substances List (DSL): | y (positive listing) All components of this product are on the Canadian DSL.) |
| Australia Inventory of Chemical Substances (AICS): | y (positive listing) On the inventory, or in compliance with the inventory) |
| New Zealand. Inventory of Chemical Substances: | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Japan. ENCS - Existing and New Chemical Substances Inventory: | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Korea. Korean Existing Chemicals Inventory (KECI): | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS): | y (positive listing) (On the inventory, or in compliance with the inventory) |
| China. Inventory of Existing Chemical Substances in China (IECSC): | y (positive listing) (On the inventory, or in compliance with the inventory) |



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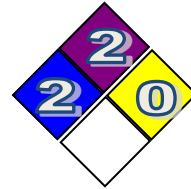
Section 16: Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Rating

- 0 Non Regulated
- 1 Low
- 2 Moderate
- 3 High
- 4 Extreme

| HMIS RATING | |
|-----------------|---|
| HEALTH | 2 |
| FLAMMABILITY | 2 |
| PHYSICAL HAZARD | 0 |
| PROTECTION | 0 |



HMIS (Hazardous Material Information Association)

NFPA (National Fire Protection System)

Recommended monitoring method

None

Appropriate engineering controls

Not normally required.

Personal protection equipment

Wear protective eye glasses for protection against liquid splashes.

Eye/face protection



Skin protection

The following to be used as necessary:

(Hand protection/ Other)

Gloves (Neoprene or Natural rubber).



Respiratory protection



Insufficient ventilation: Wear respiratory protection.

Respirators - A NIOSH/MSHA approved air purifying respirator with a organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Thermal hazards

None

Environmental Exposure Controls

Do not allow to enter drains, sewers or watercourses.

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws. The following specific information is made for the purpose of complying with numerous Federal, State or Provincial, and local laws and regulations. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

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NZD ISO FLUSH™

Isocyanates Cleaner
& Neutralizer

Isocyanates Cleaner & Neutralizer

ENVIRONMENTAL

- ⊕ Low VOC's
- ⊕ Non-Hazardous
- ⊕ Non-Flammable
- ⊕ Non-Toxic
- ⊕ DOES NOT contain raw materials on the NJ Community Right to Know Environmental Hazardous Substance (EHS) List
- ⊕ DOES NOT contain raw materials known to the State of California (Prop 65) to cause cancer, birth defects or other reproductive harm
- ⊕ DOES NOT contain raw materials listed on SECTION 112 (b) of HAPs List
- ⊕ No SARA 313 Ingredients
- ⊕ REACH Compliant

TYPICAL PROPERTIES

| | |
|---|--|
| Appearance: | Clear Liquid |
| Flash Point: (Seta Flash) | 147.50 °F |
| Odor: | Mild Organic Ester |
| Surface Tension: | 24 (dynes/cm 24) (water = 1.0) |
| pH (50% solution in water @ 68°F) | 6.8 - 8.2 |
| Vapor Pressure: (components) @ 25 °C [mm Hg] | 0.8000 |
| Initial boiling point/ boiling range (@ 760 [mm Hg]) | 385 - 485 °F |
| Ideal Operating Temp (°F) | Room Temperature |
| Ideal Operating Concentration | Full Strength |
| Specific Gravity @ (68°F) | 0.895 - 0.900 |
| Weight/Gal. (lbs. /gal.) | 7.5 |
| VOC Content: (ASTM D-2369, Method 24) | 5.9 lbs./gal or 669 grams/liter |
| HMIS Rating: | Health = 2 Fire = 2 Reactivity = 0 |
| Product # | 02-W359585 |

NZD ISO FLUSH™

Isocyanate Resin Cleaner & Neutralizer is highly effective in Flushing excess Liquid Isocyanate from processing equipment (feed lines, feed tanks, mixing and metering equipment), as well as loosening and removing partially crystalized isocyanate residue and build-up from equipment and parts. No need to pre-flush Part (A) with Mineral Oil before using **NZD ISO FLUSH™**.

NZD ISO FLUSH™ effectively removes

- ⊖ Liquid & semi-hardened Isocyanate Part (A), Polyol Part (B), Cured Polyurethane Reactive Hot Melt Adhesives from Roll Coating Equipment and Dispensing Equipment, as well as many other industrial adhesives
- ⊖ Industrial Resins such as Polyester, Vinylester, Epoxy, and Pigmented Gel Coats, as well as, Fiberglass and Resin Mixture
- ⊖ Coatings such as High & Low Solid Aliphatic, Water Borne Epoxy Primers, Polyurethane, Acrylic, Varnishes, and Alkyl Enamel



Features & Benefits

- ⊕ Low VOC
- ⊕ High Resin/Polymer loading
- ⊕ Recyclable via vacuum distillation - resulting in reduced disposal costs
- ⊕ **Replaces solvents such as NMP, Acetone, MEK, Methylene Chloride,**
- ⊕ Low rate of evaporation

Application

MAXIMUM FLUSHING TIME IS (4) HOURS.

DO NOT LEAVE NZD ISO FLUSH™ inside the system overnight.

Use **FULL STRENGTH** at room temperature. Do Not Heat this product.

- ⇒ Flush out the entire ISO (A) Line throughout the system by placing the Transfer Pump inside a pail containing 2 - 3 gallons of **NZD ISO FLUSH™ Isocyanates Cleaner & Neutralizer.**
- ⇒ Allow the transfer pump to pass the solvent throughout the system by recirculating up to a Maxim (4) hours or until it runs clear. Push the spent solvent and ISO mixture into a waste bucket. **Do Not Reuse.**
- ⇒ Once the system is free of Isocyanates, you are now ready to purge the system with a few quarts of Isocyanates and ready to spray away.
- ⇒ **TO STORE your equipment** - Add SurfaLube™ Equipment Storage Fluid to the lines. Your equipment is ready for storage.
- ⇒ For **QUICK hand wipe** applications, use NZD ISO FLUSH™ **GO GREEN™ Wipes.**

**RECOMMENDED MATERIALS TO USE FOR:
O-Rings, Gaskets, Hoses and Pump Packaging**

Teflon
Butyl Rubber
Silicon Rubber
Klarez

Mild Steel
Halar
Melamine
Nylon 101

Polyethylene
Polypropylene
Ryton

Viton
ABS
Durel
Kynar

Phenolic
Polyurethane
PVC
Buna-N

MATERIAL TO AVOID

PET
Lexan
Valox
Polyester

Noryl EN-265
Noryl -73I
Polysulfone
Ultem

Lucite
Hypalon

PACKAGING & STORAGE

HDPE UN Rated

- 1 Gallon EasyPour Jugs
- 5 Gallon Pails
- 55 Gallon Steel Drums (closed cap)

GO GREEN™ Wipes
in an "Easy Carry Bucket"
(90 / 12" x 12" Polypropylene
Saturated Wipes)

Freight easily shipped via local
carriers ground or LTL.

This product should be kept in its
original container above freezing
and less than 100 °F.

Store drums in a dry area.

SAFETY&HANDLING PRECAUTIONS

Refer to SDS for additional safe
handling & disposal

Direct contact of NZD ISO FLUSH™ will cause a mild skin irritation or serious eye irritation. It is important to utilize recommended gloves (natural rubber), safety goggles and other suitable protective clothing your company recommends. Aspiration hazard if swallowed. Keep liquid and vapor away from heat, sparks and flames. Keep container closed. **Use product with adequate ventilation. Do Not take internally.** Keep out of reach of children. Avoid contact with skin, eyes and clothing. Avoid breathing vapors or mist. Wash thoroughly after handling. Never give anything by mouth to an unconscious person Get medical advice/attention.

Refer to SDS Section 4 First Aid Measures

DISPOSAL

Refer to SDS for additional safe
handling & disposal

The spent material should not be disposed of in any sewerage system. Solutions containing hazardous or non-hazardous coatings and other soils should be handled and treated according to Federal, State and Local Environmental Laws. Discharge your waste and rinse water according to Federal, State and Local Regulations.



10 Eagle Avenue - Suite 500 - Mount Holly, NJ 08060
Phone: 609-518-7577 / Fax: 609-518-5277



GLOBAL SPECIALTY PRODUCTS USA INC.

NZD | ISO FLUSH™ Isocyanate Cleaner & Neutralizer
Safety Data Sheet SDS-02-W359585 Version 8.0
 according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.
Revision date: 01-26-2024 Supersedes: 05-06-2022 Date of issue: 01-26-2024

Section 1: Product and Company Identification

Product Form: Mixture

Product Name: NZD | ISO FLUSH™ Isocyanate Cleaner

Product #: 02-W359585

Intended Use of the Product: Commercial, Industrial and Professional use only. Use as directed

Manufacturer

Chemical Emergency Number: ChemTel: 1-800-255-3924

Global Specialty Products - USA, Inc.

10 Eagle Avenue - Suite 500

Mount Holly, New Jersey 08060

www.gsp-usa-inc.com

Telephone: 609-518-7577 **Fax:** 609-518-5277 *Mon - Fri, 8am - 5 pm PST*

Email: support@gsp-usa-inc.com

Section 2: Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200).

Label Elements

Hazard Pictograms (GHS-US)



Irritant

Signal Word (GHS-US): Warning

| | Class | Code | Category | Statement |
|----------------------------------|--------------|-------------|-----------------|-------------------------------------|
| Flammable Liquid | H227 | H227 | 4 | Combustible |
| Acute Toxicity (Oral) | Acute | H302 | 4 | Harmful if swallowed |
| Skin Irritation | Acute | H313 | 5 | May be harmful in contact with skin |
| | | H316 | 3 | Causes mild skin irritation |
| Eye:Damage/Eye Irritation | | H319 | 2A | Causes serious eye irritation |
| Inhalation: | | H333 | 5 | May be harmful if Inhaled |

Precautionary Statements (GHS-US)

General precautionary statements

P101: If medical advice is needed, have product container or label at hand;

P102: Keep out of reach of children.

P103: Read label before use. **Prevention precautionary statements** **P210:** Combustible Liquid - Keep away from heat/sparks/open flames/hot surfaces. No smoking **P260:** Do not breathe vapors, mist, or spray; **P261:** Avoid breathing dust/fume/gas/mist/vapours/spray; **P262:** Do not get in eyes, on skin, or on clothing; **P264:** Wash thoroughly after handling; **P270:** Do not eat, drink or smoke when using this product; **P271:** Use only outdoors or in a well ventilated area; **P272:** Contaminated work clothing must not be allowed out of the workplace; **P273:** Avoid release to the environment; **P280:** Wear protective clothing, protective gloves, eye protection. **P301+P330+P331 – IF SWALLOWED:** Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor/physician. **P321 - See Section 4 on SDS (First aid measures)** **P303+P313+P333+P353+P361+P363 – IF ON SKIN (OR HAIR)** Take off immediately all contaminated clothing. Wash skin with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. **P304+P340 - IF INHALED:** Remove person to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. **P305+P310 +P338 +P351- IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center or doctor. **Disposal: P501 -** Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations. **Other Hazards:** Exposure may irritate the respiratory tract (nose, throat, and lungs).



GLOBAL SPECIALTY PRODUCTS USA INC.

NZD | ISO FLUSH™ Isocyanate Cleaner & Neutralizer

Safety Data Sheet **SDS-02-W359585**

Version 8.0

according to U.S. Code of Federal Regulations 29 CFR 1910.1200, Hazard Communication.

Revision date: 01-26-2024 Supersedes: 05-06-2022 Date of issue: 01-26-2024

Section 3: Composition/Information on Ingredients

Mixture

| Name | Product Identifier CAS # | % (w/w) | Exposure Limits |
|---------------------------------------|--------------------------|--------------|--|
| Dipropylene Glycol Monomethylether | 34590-94-8 | *Proprietary | NIOSH REL: : TWA 100 ppm (600 mg/m ³) ST 150 ppm (900 mg/m ³) [skin] OSHA PEL †: TWA 100 ppm (600 mg/m ³) [skin] |
| Olefinic Hydrocarbon/Paraffin Mixture | 64742-48-9 | *Proprietary | Not Available |
| Terpene Hydrocarbon | 68956-56-9 | *Proprietary | Not Available |

Contains no other hazardous components at 1% or more as listed or defined in 29 CFR 1910, Subpart Z. Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA. * The specific chemical identity and/or exact

percentage of composition have been withheld as a trade secret (29 CFR 1910.1200) This product contains other important & proprietary ingredients (co-solvents, wetting agents, corrosion inhibitor, rinsing agent, etc.) **California Prop 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

DOES NOT contain raw materials listed on SECTION 112(b) OF HAZARDOUS AIR POLLUTANTS.

Section 4: First Aid Measures

Description of First Aid Measures

GENERAL: Never give anything to an unconscious person, If Exposed or Concerned; Get medical advice/attention immediately.

INHALATION: When symptoms occur remove to fresh air immediately. Keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a POISON CENTER, doctor or physician Immediately.

Ventilate suspected area. **SKIN CONTACT:** Wear natural rubber gloves to protect your skin. Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice and attention Immediately. Wash contaminated clothing before reuse.

EYE CONTACT: **This product is non-corrosive and water miscible.** In case of eye contact, immediately flush eyes with plenty of water (for at least 15 minutes), remove contact lenses, if present and easy to do so. Continue rinsing until the irritation stops. Call a physician if the irritation persists. **INGESTION:** If swallowed, rinse mouth do not induce vomiting. Get medical advice and attention. Never give anything by mouth to an unconscious person. **NOTE TO PHYSICIANS:** To prepare activated charcoal slurry suspend 50 g activated charcoal in 400 ml water in plastic bottle and shake well. Administer 5 ml/kg, or 350 ml for an average adult.

Most Important Symptoms and Effects Both Acute and Delayed

According To MSDSs supplied by the Raw Material Suppliers”, the ingredients are moderate to strong skin and eye irritant. They may affect the central nervous system causing dizziness, headache or nausea. They may affect eye, skin and respiratory tract irritation. The product will be harmful if inhaled. **INHALATION:** Moderate to strong hazard for usual Industrial handling.

INGESTION: Toxicity reports from raw material suppliers described from repeated exposure include weight gain, but there have been no pathological abnormalities noted. According to the suppliers of the raw materials in this product, the ingredients do not produce genetic damage in animals or in bacterial cell cultures, and do not have developmental or reproductive effects.

CARCINOGENS: **None of the components in this product are listed by IARC, OSHA, NTP, EPA or ACGIH as a carcinogen.**

SIGNS AND SYMPTOMS OF EXPOSURE: Skin irritation or dermatitis, eye irritation or Inflammation, pallor nausea, lack of coordination.

Indication of Any Immediate Medical Attention and Special Treatment Needed:

If medical advice is needed, have product container or label at hand.



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Section 5: Fire Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Water Spray, CO₂, Dry Chemical, Foam

Unsuitable Extinguishing Media: Use of heavy stream of water may spread fire.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable - this product is Combustible

Explosion Hazard: Product is not explosive

Reactivity: Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids, Oxidizers or Reducing agents.

Dangerous fire hazard when exposed to heat or flame.

Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire. Under fire condition, hazardous fumes will be present.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO₂). Irritating or toxic vapors.

Special Fire Fighting Procedures: Keep personnel removed and upwind of fire. Firefighters should wear protective clothing to prevent contact with skin and eyes. Wear positive pressure self contained breathing apparatus

Reference to Other Sections - Refer to section 9 for flammability properties. Refer to section 16 for NFPA information.

Section 6: Accidental Release Measures

Steps To Take If Material Is Released/Spilled/Leaks

NOTE: Review Fire And Explosion Hazards and Safety Precautions before proceeding with clean up.

Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Remove source of heat, sparks, flame, impact, friction or electricity.

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Spilled material may present a slipping hazard.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions Prevent liquid from entering sewers, waterways or low areas. Recover free liquid for reuse or reclamation. Recover undamaged and minimally contaminated material for reuse or reclamation. Contact competent authorities after a spill.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely.

Keep in suitable, closed containers for disposal.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

Section 7: Handling and Storage

Precautions for Safe Handling

Additional Hazards When Processed: Provide general ventilation. Where adequate ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls. Do Not Heat or Atomize this product. If this material is handled under mist forming conditions, approved respiratory protection equipment should be used.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Container remains hazardous when empty. Continue to observe all precautions.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container tightly closed. Keep in original container.

Incompatible Materials: Strong Oxidizers. Reducing agents. Strong Acid.

Specific End Use(s): Commercial use. For professional use only.



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Section 8: Exposure Controls/Personal Protection

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Exposure Controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Materials for Protective Clothing: Chemically resistant materials and fabrics (apron, boots or whole bodysuit made from butyl rubber as appropriate)

Hand Protection: Wear chemically resistant protective gloves.

Eye / Face Protection: Safety glasses with side shields, or goggles, are recommended.

Insufficient ventilation: Wear respiratory protection.

Respirators - A NIOSH/MSHA approved air purifying respirator with a organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Section 9: Physical and Chemical Properties

| | |
|---|--|
| Appearance | Clear Liquid |
| Odor | Mild |
| pH (50% solution in water @ 68 °F): | 6.8 - 8.2 |
| Surface Tension (dynes/cm 24) (water = 1.0): | 24 |
| Initial boiling point and boiling range (@ 760 [mm Hg]) | 385 - 485 °F |
| Flash point | 147.50 °F Seta Flash |
| Evaporation rate (nBuAc = 1.00) | N/A |
| Specific Gravity: | 0.895 - 0.9000 (@ 68 °F) |
| Flammability (solid, gas) | N/A |
| Upper/lower flammability or explosive limits | N/A |
| Vapor pressure (@ 25 °C [mm Hg]) | 0.8000 |
| Vapor density | N/A |
| Solubility (ies) | Partially Miscible |
| Partion coefficient: n-octanol/water | N/A |
| Auto-ignition temperature | N/A |
| Decomposition temperature | N/A |
| Viscosity @68°F (water=1.0) | Water thin |
| Weight/Gallon | 7.5 (lbs. / gal.) |
| Normal Working Concentrations/Temperature | Full Strength @ Room Temperature Only - Do Not Heat or Atomize |
| VOC Content (ASTM D-2369, Method 24) | 5.9 lbs./gal or 669.0 grams/liter |
| Recycling Parameters (Vacuum Distillation) | 300 °F and 27 mm Hg Pressure |



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Section 10: Stability and Reactivity

Reactivity: Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids.

Chemical Stability: The product is stable at normal handling and storage conditions.

Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

Conditions to Avoid: Moisture. Extremely high or low temperatures. Incompatible materials.

Incompatible Materials: Acids. Oxidizers. Reducing agents.

Hazardous Decomposition Products: Thermal decomposition generates: Carbon oxides (CO, CO₂). Irritating or toxic vapors.

Section 11: Toxicological Information

Information on Toxicological Effects - Components

Dipropylene Glycol Monomethylether

CAS # 34590-94-8

Acute Toxicity

Ingestion

LD50, rat > 5,000 mg/kg

Dermal LD50, rabbit 9,510 mg/kg

Inhalation No deaths occurred at this concentration. LC50, 7 h, Vapor, rat 3.35 mg/l

Eye damage/eye irritation May cause slight temporary eye irritation. Corneal injury is unlikely.

Skin corrosion/irritation Prolonged exposure not likely to cause significant skin irritation.

Sensitization Skin Did not cause allergic skin reactions when tested in humans.

Respiratory No relevant data found. Repeated Dose Toxicity Symptoms of excessive exposure may be anesthetic or narcotic effects; dizziness and drowsiness may be observed.

Chronic Toxicity and Carcinogenicity For similar material(s): Did not cause cancer in laboratory animals.

Developmental Toxicity Did not cause birth defects or any other fetal effects in laboratory animals. Reproductive Toxicity For similar material(s): In laboratory animal studies, effects on reproduction have been seen only at doses that produced significant toxicity to the parent animals.

Genetic Toxicology In vitro genetic toxicity studies were negative.

Olefinic Hydrocarbon/Paraffin Mixture

CAS# 64742-48-9

Acute toxicity:

LD/LC50 values that are relevant for classification: 64742-48-9 Naphtha (petroleum), hydrotreated heavy

Oral LD50 >5000 mg/kg (rat)

Dermal LD50 >3000 mg/kg (rab)

Primary irritant effect:

On the skin: No irritant effect. **On the eye:** No irritating effect.

Sensitization: No sensitizing effects known.

Additional toxicological information:

Carcinogenic categories IARC (International Agency for Research on Cancer) Substance is not listed.

NTP (National Toxicology Program) Substance is not listed

Terpene Hydrocarbon

68956-56-9

RTECS#: CAS# 68956-56-9 unlisted. **LD50/LC50:** Not available.

Carcinogenicity: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

Epidemiology: No information found

Teratogenicity: No information found

Reproductive Effects: No information found

Mutagenicity: No information found

Neurotoxicity: No information found

Other Studies: No information found



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Section 12: Ecological Information

Information on Ecological Effects - Components

Dipropylene Glycol Monomethylether

CAS # 34590-94-8

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).

Fish Acute & Prolonged Toxicity LC50, *Poecilia reticulata* (guppy), static test, 96 h: > 1,000 mg/l

Aquatic Invertebrate Acute Toxicity LC50, *Daphnia magna* (Water flea), static test, 48 h, lethality: 1,919 mg/l LC50, Crangon crangon (shrimp), semi-static test, 96 h: > 1,000 mg/l

Aquatic Plant Toxicity ErC50, *Pseudokirchneriella subcapitata* (green algae), static test, biomass growth inhibition, 96 h: > 969 mg/l

Aquatic Invertebrates Chronic Toxicity Value *Daphnia magna* (Water flea), flow-through test, 22 d, NOEC: > 0.5 mg/l, LOEC: > 0.5 mg/l

Persistence and Degradability

Material is readily biodegradable. Passes OECD test(s) for ready biodegradability. Material is ultimately biodegradable (reaches > 70% biodegradation in OECD test(s) for inherent biodegradability).

OECD Biodegradation Tests: Biodegradation Exposure Time Method 10 Day Window 75 % 28 d OECD 301F Test pass

Indirect Photodegradation with OH Radicals Rate Constant Atmospheric Half-life Method

5.00E-05 cm³/s 3.4 - 10.4 h Estimated.

Biological oxygen demand (BOD): BOD 5 BOD 10 BOD 20 BOD 28 0 % 0 % 31.6 %

Chemical Oxygen Demand: 2.02 mg/mg

Theoretical Oxygen Demand: 2.06 mg/mg Bioaccumulative potential Bioaccumulation:

Bioconcentration potential is low (BCF < 100 or Log Pow < 3).

Partition coefficient, n-octanol/water (log Pow): 1.01 Measured

Mobility in soil

Mobility in soil: Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process., Potential for mobility in soil is very high (Koc between 0 and 50).

Partition coefficient, soil organic carbon/water (Koc): 0.28 Estimated.

Henry's Law Constant (H): 1.6E-07 atm*m³/mole; 25 °C Estimated.

Olefinic Hydrocarbon/Paraffin Mixture

CAS# 64742-48-9

Toxicity: Aquatic toxicity: No further relevant information available.

Persistence and degradability: No further relevant information available.

Behavior in environmental systems: Bioaccumulative potential: No further relevant information available.

Mobility in soil: No further relevant information available.

Additional ecological information:

General notes: Water hazard class 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even small quantities leak into the ground.

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Other adverse effects: No further relevant information available

Terpene Hydrocarbon

CAS# 68956-56-9

Ecotoxicity: No data available. No information available.

Environmental: No information available.

Physical: No information available.

Other: Do not empty into drains.



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Section 13: Disposal Considerations

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.

Waste Disposal Recommendations: Dispose of waste material in accordance with all local, regional, national, provincial, territorial and international regulations. **Waste characterizations and compliance with applicable laws are solely the responsibility of the waste generator**

Additional Information: Container remains hazardous when empty. Continue to observe all precautions. This product, if discarded, would not be a hazardous waste by listing and is not expected to be a characteristic hazardous waste. Processing, use, or contamination by the user may change the waste code(s) applicable to the disposal of this product.

Section 14: Transport Information

| | |
|----------------------------|---|
| Proper Shipping Name: | NZD ISO FLUSH™ ISOCYANATE CLEANER & NEUTRALIZER |
| DOT Identification Number: | Class 70 |
| NMFC Number: | 4858003 |
| Land DOT Hazard Class: | Combustible Liquid (No ODCs, NON-FLAMMABLE, NON-CORROSIVE, WATER-MISCIBLE) |
| Hazardous Ingredients: | See Section I, VI and Section IX |
| In Accordance with IMDG | Not regulated for transport |
| In Accordance with IATA | Not regulated for transport |
| In Accordance with TDG | Not regulated for transport |

Section 15: Regulatory Information

OSHA Hazard Communication Standard (Components)

Dipropylene Glycol Monomethylether

CAS # 34590-94-8

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312 Immediate (Acute) Health Hazard; Yes Delayed (Chronic) Health Hazard; No

Fire Hazard; Yes

Reactive Hazard; No

Sudden Release of Pressure Hazard; No

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986)

Section 313: To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Hazardous Substances List and/or Pennsylvania Environmental Hazardous Substance List:

The following product components are cited in the Pennsylvania Hazardous Substance List and/or the Pennsylvania Environmental Substance List, and are present at levels which require reporting.

Pennsylvania (Worker and Community Right-To-Know Act): Pennsylvania Special Hazardous Substances List:

To the best of our knowledge, this product does not contain chemicals at levels which require reporting under this statute.



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Section 15: Regulatory Information (cont'd)

OSHA Hazard Communication Standard (Components)

Dipropylene Glycol Monomethylether

CAS# 34590-94-8

California Proposition 65 (Safe Drinking Water and Toxic Enforcement Act of 1986)

This product contains no listed substances known to the State of California to cause cancer, birth defects or other reproductive harm, at levels which would require a warning under the statute.

US. Toxic Substances Control Act

All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CEPA - Domestic Substances List (DSL)

This product contains one or more substances which are not listed on the Canadian Domestic Substances List (DSL).

Olefinic Hydrocarbon/Paraffin Mixture

CAS# 64742-48-9

Safety, health and environmental regulations/legislation specific for the substance or mixture SARA

Section 355 (extremely hazardous substances): Substance is not listed.

Section 313 (Specific toxic chemical listings): Substance is not listed.

TSCA (Toxic Substances Control Act): Substance is listed.

Proposition 65 Chemicals known to cause cancer: Substance is not listed.

Chemicals known to cause reproductive toxicity for females: Substance is not listed.

Chemicals known to cause reproductive toxicity for males: Substance is not listed.

Chemicals known to cause developmental toxicity: Substance is not listed.

Carcinogenic categories EPA (Environmental Protection Agency) Substance is not listed.

TLV (Threshold Limit Value established by ACGIH) Substance is not listed.

NIOSH-Ca (National Institute for Occupational Safety and Health) Substance is not listed.

OSHA-Ca (Occupational Safety & Health Administration) Substance is not listed

GHS label elements The substance is classified and labeled according to the Globally Harmonized System (GHS). Hazard pictograms GHS08 Signal word Danger

Hazard-determining components of labeling  phtha (petroleum), hydro treated heavy

Hazard statements Combustible liquid. May be fatal if swallowed and enters airways.

Precautionary statements

If medical advice is needed, have product container or label at hand. Keep out of reach of children. Read label before use. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Wear protective gloves/protective clothing/eye protection/face protection.

IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Store locked up. Store in a well-ventilated place. Keep cool

Dispose of contents/container in accordance with local/regional/national/international regulations.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

Terpene Hydrocarbon

CAS# 68956-56-9

US FEDERAL

TSCA CAS# 68956-56-9 is listed on the TSCA inventory.

Health & Safety Reporting List None of the chemicals are on the Health & Safety Reporting List.

Chemical Test Rules None of the chemicals in this product are under a Chemical Test Rule.

Section 12b None of the chemicals are listed under TSCA Section 12b.

TSCA Significant New Use Rule None of the chemicals in this material have a SNUR under TSCA.

CERCLA Hazardous Substances and corresponding RQs None of the chemicals in this material have an RQ.

SARA Section 302 Extremely Hazardous Substances None of the chemicals in this product have a TPQ.

Section 313 No chemicals are reportable under Section 313.

Clean Air Act:

This material does not contain any hazardous air pollutants.

This material does not contain any Class 1 Ozone depleters.

This material does not contain any Class 2 Ozone depleters.



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Section 15: Regulatory Information (cont'd)

OSHA Hazard Communication Standard (Components)

Terpene Hydrocarbon (Cont'd)

CAS# 68956-56-9

US FEDERAL

Clean Water Act:

None of the chemicals in this product are listed as Hazardous Substances under the CWA.

None of the chemicals in this product are listed as Priority Pollutants under the CWA.

None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

OSHA: None of the chemicals in this product are considered highly hazardous by OSHA.

STATE

CAS# 68956-56-9 can be found on the following state right to know lists: New Jersey.

California Prop 65

California No Significant Risk Level: None of the chemicals in this product are listed.

European/International Regulations

European Labeling in Accordance with EC Directives

Hazard Symbols: Xi N

Risk Phrases:

R 10 Flammable.

R 38 Irritating to skin.

R 43 May cause sensitization by skin contact.

R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

R 65 Harmful: may cause lung damage if swallowed.

Safety Phrases:

S 2 Keep out of reach of children.

S 24 Avoid contact with skin.

S 37 Wear suitable gloves.

S 60 This material and its container must be disposed of as hazardous waste.

S 61 Avoid release to the environment.

Refer to special instructions /safety data sheets.

WGK (Water Danger/Protection)

CAS# 68956-56-9: No information available.

Canada - DSL/NDSL

CAS# 68956-56-9 is listed on Canada's DSL List.

Canada - WHMIS This product has a WHMIS classification of B3, D2B, D2A.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

Canadian Ingredient Disclosure List

Section 16: Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Rating

| | |
|---|---------------|
| 0 | Non Regulated |
| 1 | Low |
| 2 | Moderate |
| 3 | High |
| 4 | Extreme |

| HMIS RATING | |
|-----------------|---|
| HEALTH | 2 |
| FLAMMABILITY | 2 |
| PHYSICAL HAZARD | 0 |
| PROTECTION | 0 |



HMIS (Hazardous Material Information Association)

NFPA (National Fire Protection System)

| | |
|----------------------------------|---|
| Recommended monitoring method | None |
| Exposure controls | |
| Appropriate engineering controls | Not normally required. |
| Personal protection equipment | Wear protective eye glasses for protection against liquid splashes. |
| Eye/face protection | |



Skin protection
(Hand protection/ Other)

The following to be used as necessary:
Gloves (Neoprene or Natural rubber).

Respiratory protection



Insufficient ventilation: Wear respiratory protection.
Respirators - A NIOSH/MSHA approved air purifying respirator with a organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection.

Thermal hazards

None

Environmental Exposure Controls

Do not allow to enter drains, sewers or watercourses.

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws. The following specific information is made for the purpose of complying with numerous Federal, State or Provincial, and local laws and regulations. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.



PROTECTION, MAINTENANCE, PERFORMANCE



ENVIRONMENTAL

- ☞ VOC Exempt
- ☞ Non-Flammable
- ☞ Non-Hazardous
- ☞ Non-Toxic
- ☞ Non-hydroscopic
- ☞ No ODC's
- ☞ Non-Corrosive
- ☞ None of the Ingredients are listed on (CA PROP 65)
- ☞ No SARA 311, 312, 313 Ingredients
- ☞ Non HAPs
- ☞ REACH Compliant

TYPICAL PROPERTIES

| | |
|--|---|
| Appearance: | Clear liquid Colorless to slight amber |
| Odor: | Slight Characteristic |
| Ideal Operating Temp | Room Temperature |
| Concentration | Full Strength |
| pH @50% | 6.5 - 7.5 |
| Freezing Point | -70 °C (-94 °F) |
| Flash Point: | 116 - 120 °C (241 - 248 °F) |
| Vapor Pressure (components) | ≤ 0.02 mmHg @ 20 °C (68 °F) |
| Vapor Density | 1.2 - 7.5 @ 20 °C (68 °F) (Air= 1.0) |
| Specific Gravity: | 1.090 - 1.095 @ 20 °C (68 °F) Reference substance: (water= 1) |
| Components Boiling Point @ 760 mmHg | 242 - 255 °C (467.6 - 491 °F) |
| Solubility in water | Soluble |
| VOC | Exempt |
| Recycling Parameters (Vacuum Distillation) | 195-253°F @ 760 mmHg Pressure |
| Weight/Gal. | 9.1 (lbs. /gal.) |
| HMIS Rating | Health = 1; Fire = 1; Reactivity = 0 |
| Product # | 02-WV400590 |

SurfaLube™ Equipment Storage Fluid is used in Urethane Dispensing and Polyurea Spray Equipment for mid to long-term Storage (up to 36 months).

SurfaLube™ is a plasticizer that prevents Isocyanate Polymers from forming crystals. It makes polymers flexible and soft and is designed to avoid forming Isocyanate (A) crystals inside transfer pumps, hoses, proportioners, and guns. It is **ideal for winterizing your rigs** and can withstand severe cold environments without freezing (the freezing point is -70 °C (-94 °F).

SurfaLube™ Eco-Friendly Ingredients are formulated to keep the ISO (A) line or Resin (B) line from hardening. **However, there may be a reaction if moisture is present in the lines and a small or large amount of Isocyanates. The system must be flushed correctly to avoid any issues.**

FLUSHING prior to use of SurfaLube™:

During Flushing, make sure the heaters on the machine are turned off.

Flush at Room Temperature via pump circulation your spray foam equipment (hoses, proportioner, guns, pumps, etc.) **with either.**

NZD ISO FLUSH™ Isocyanate Cleaner & Neutralizer (**Liquid Iso Part A**) and minimum hardened Iso)

OR

SURF X FLUSH 2000™ (a considerable amount of hardened Iso).

PREPARING THE SYSTEM FOR STORAGE:

Once the flushing step is completed, the lines should be purged (through hoses and spray lines) using **SurfaLube™**. This will remove any leftover **NZD ISO FLUSH™** and ISO (A) mixture. Once the purging phase is completed, fresh "**Virgin**" **SurfaLube™** can be introduced to the mid-term or long-term storage equipment. The equipment should be stored in a cool, dry, moisture-free area until it is ready to be used again. When you are ready to spray again, start the unit, flush out **SurfaLube™** thoroughly, and purge your ISO line with a couple of Qts. of Isocyanate. **(The first few pounds of Parts A & B sprayed through the system should be scrapped to avoid adhesion failure. Now You are Ready To Spray!**

SurfaLube™ is a safe and gentle storage fluid that won't damage your equipment's O-rings, gaskets, seals, and lining. It meets industry standards and regulatory needs and is an excellent choice for end-use contractors who require superior and long-term storage requirements. If you're looking for a reliable and safe storage fluid for your equipment, **SurfaLube™ is the perfect solution.**

To MAINTAIN A CLEAN AND CLEAR Gun Mix Chamber, it is recommended to use SURF X™ PRO 2000 Gun Flush daily. This product effectively removes most cured Polyurethane Foam (Part A+B), ensuring a smooth and even spray throughout the day.

Physical Attributes

Stability & Compatibility

SurfaLube™ Equipment Storage Fluid is stable under normal

storage conditions. It is compatible with machines and transfer pumps made of Carbon Steel or Stainless Steel and Aluminum Alloys.

PREFERRED HOSE AND GASKET MATERIALS ARE:

☞ Cork ☞ Natural Rubber ☞ Neoprene ☞ EPDM ☞ Polyethylene ☞ Teflon

Buna N, Hypalon and Viton **are not suitable** gasket materials for mid to long-term (days and weeks) storage. Information from material suppliers and specific conditions of contact should be considered in the selection of suitable materials.

Information from material suppliers and specific conditions of contact should be considered in the selection of suitable materials.

SAFETY & HANDLING PRECAUTIONS

Refer to SDS for additional safe handling & disposal

Direct contact of **SurfaLube™** causes serious eye irritation. Causes skin irritation. It is important to utilize recommended gloves (natural rubber), safety goggles and other suitable protective clothing your company recommends. Aspiration hazard if swallowed. Avoid contact with skin, eyes and clothing. Do not heat this product. Keep liquid and vapor away from heat, sparks and flames. Keep container closed. **DO NOT** take internally. Avoid contact with skin, eyes and clothing. Wash thoroughly after handling.

DISPOSAL

Refer to SDS for additional safe handling & disposal

SurfaLube™ has a low order of toxicity, with a low risk of environmental harm. Effluent analysis is required for proper waste disposal. The spent material can be added to your non-hazardous waste stream (cleaning solvents) to be disposed of according to Federal, State and Local Regulations.

PACKAGING & STORAGE

HDPE UN Rated

1 Gallon EasyPour Jugs
5 Gallon Pails
55 Gallon Steel Drums (closed cap)

Freight easily shipped via local carriers ground or LTL.

This product should be kept in its original container above freezing and less than 100 °F.

Store drums in a dry area.



10 Eagle Avenue - Suite 500 - Mount Holly, NJ 08060
Phone: 609-518-7577 / Fax: 609-518-5277

Section 1: Product and Company Identification

Product Form: Propriety Product

Product Name: SURF A LUBE™ - Equipment Storage Fluid (Environmentally Sensible) LOW VOC, non-HAPs, non-Combustible, non-Corrosive

Product #: 02-W400590

Intended Use of the Product: Commercial, Industrial and Professional use only. Use as directed

Manufacturer

Chemical Emergency Number: ChemTel: 1-800-255-3924

Global Specialty Products - USA, Inc.

10 Eagle Avenue - Suite 500

Mount Holly, New Jersey 08060

www.gsp-usa-inc.com


Telephone: 609-518-7577 **Fax:** 609-518-5277 *Mon - Fri, 8am - 5 pm PST*

Email: support@gsp-usa-inc.com

Section 2: Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standards (29 CFR 1910.1200).

Label Elements

| Signal Word | Classification of the substance or Mixture | Category | Hazard Statements (GHS-US) | Hazard Pictograms/ Labeling (GHS-US) |
|-------------|--|----------|--------------------------------------|---|
| Warning | Eye Irritation | 2A | H319 - Causes Serious eye irritation |  |
| | Skin Irritation | 3 | H315 - Causes skin irritation | |

Precautionary Statements (GHS-US)

General precautionary statements: P101: If medical advice is needed, have product container or label at hand;

Prevention precautionary statements

P264: Wash thoroughly after handling; **P280:** Wear eye protection, face protection.

Precautionary Statements: PREVENTION: P102: Keep out of reach of children. **P103:** Read label before use. **P264** - Wash skin thoroughly after handling. **P280** - Wear eye protection/face protection **RESPONSE: P305 , P351, P338 - IF IN EYES** - Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P337 + P313 - If eye irritation persists: Get medical advice/ attention **Other Hazards which do not result in classification:** N/A

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC. **ACGIH:** No component of this product present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA: No component of this product present at levels greater than or equal to 0.1 % is identified as a carcinogen or potential carcinogen by OSHA. **NTP:** No component of this product present at levels greater than or equal to 0.1 % is identified as a known or anti-cipated carcinogen by NTP.

Section 3: Composition/Information on Ingredients

Mixture

The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret (29 CFR 1910.1200) Contains no hazardous components at 1% or more as listed or defined in 29 CFR 1910, Subpart Z. Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA. This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

California Prop 65 Components: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. **DOES NOT contain raw materials listed on SECTION 112(b) OF HAZARDOUS AIR POLLUTANTS.**

Section 4: First Aid Measures

Description of First Aid Measures

GENERAL: Never give anything to an unconscious person. If Exposed or Concerned; Get medical advice/attention immediately.

INHALATION: When symptoms occur remove to fresh air immediately. Keep at rest in a position comfortable for breathing. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a POISON CENTER, doctor or physician immediately. Ventilate suspected area.

SKIN CONTACT: Wash with plenty of soap and water. If skin irritation or rash occurs, get medical advice and attention immediately. Wash contaminated clothing before reuse.

EYE CONTACT: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Duration of rinsing should be at least 15 minutes. Get medical attention if irritation persists after washing.

INGESTION: Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person.

If symptoms persist, call a physician. **NOTE TO PHYSICIANS:** Treat symptomatically.

Indication of Any Immediate Medical Attention and Special Treatment Needed

If medical advice is needed, have product container, SDS or label at hand.

Section 5: Fire Fighting Measures

Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire. Water Spray, CO₂, Dry Chemical, Foam

Unsuitable Extinguishing Media: High volume water jet.

Special Hazards Arising From the Substance or Mixture

Specific Hazards during firefighting: Do not allow run-off from fire fighting to enter drains or water courses.

Hazardous combustion products: toxic fumes Carbon oxides.

Specific extinguishing methods: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Further Information: Standard procedure for chemical fires.

Special protective equipment for firefighters: Wear self-contained breathing apparatus for fire-fighting if necessary.

Use personal protective equipment.

Reference to Other Sections - Refer to section 9 for flammability properties. Refer to section 16 for NFPA information

NFPA Flammable and Combustible Liquids Classification: Combustible Liquid Class III B

Section 6: Accidental Release Measures

Steps To Take If Material Is Released/Spilled/Leaks

NOTE: Review Fire And Explosion Hazards and Safety Precautions before proceeding with clean up.

Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Remove source of heat, sparks, flame, impact, friction or electricity.

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Spilled material may present a slipping hazard.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions Prevent liquid from entering sewers, waterways or low areas. Recover free liquid for reuse or reclamation. Recover undamaged and minimally contaminated material for reuse or reclamation. Contact competent authorities after a spill.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal and dispose of waste safely.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

Section 7: Handling and Storage

Precautions for Safe Handling

ADVICE ON SAFE HANDLING: Do not breathe vapors/dust. Avoid contact with skin and eyes. For personal protection see section 8.

Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards. **Storage Conditions:** Store in a dry, cool and well-ventilated place. Keep container tightly closed. Keep in original container.

Specific End Use(s): Commercial use. For professional use only.

Section 8: Exposure Controls/Personal Protection

Control Parameters

Contains no substances with occupational exposure limit values.

Personal protective equipment

Respiratory protection - No personal respiratory protective equipment normally required.

In the case of vapor formation use a respirator with an approved filter.

Hand Protection: Wear chemically resistant protective gloves.

Eye / Face Protection: Eye wash bottle with pure water. Safety glasses with side shields, or goggles, are recommended. Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection: Impervious clothing. Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures: When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

Section 9: Physical and Chemical Properties

| | |
|---|---|
| Appearance | Clear Liquid - Colorless |
| Odor | Slight Characteristic |
| Odor Threshold | N/A |
| pH | 6.5 - 7.5 |
| Freezing Point | -70 °C (-94 °F) |
| Boiling point (Boiling point/boiling range) | 242 - 255 °C (467.6 - 491 °F) |
| Flash point | 116 - 120 °C (241 - 248 °F) |
| Evaporation rate | < 0.01 n-Butyl Acetate |
| Flammability (solid, gas) | N/A |
| Burning Rate | N/A |
| Upper explosion limit | 21 - 32.5% (V) |
| Lower explosion limit | 1.7 - 4.7 % (V) |
| Vapor density | 1.2 - 7.5 @ 20 °C (68 °F) (Air= 1.0) |
| Specific Gravity (@ 68 °F grams/ ml) | 1.090 - 1.095 @ 20 °C (68 °F) Reference substance: (water= 1) |
| Vapor pressure | 0.02 mmHg @ 20 °C (68 °F) |
| Solubility in water | Soluble |
| Auto-ignition temperature | 430 - 455 °C |
| Viscosity @68°F (water=1.0) | Water thin |
| Weight/Gallon | 9.10 (lbs. / gal.) |
| Normal Working Concentrations/ Temperature | Full Strength @ Room Temperature Only |
| Recycling Parameters (Vacuum Distillation) | 195 - 253 °F AND 760 MM HG PRESSURE |
| REACTIVITY | NO DANGEROUS REACTION KNOWN UNDER CONDITIONS OF NORMAL USE. |
| CHEMICAL STABILITY | STABLE UNDER NORMAL CONDITIONS. |
| POSSIBILITY OF HAZARDOUS REACTIONS | NO HAZARDS TO BE SPECIALLY MENTIONED. |
| CONDITIONS TO AVOID | HEAT, FLAMES AND SPARKS. EXPOSURE TO MOISTURE. ELEVATED TEMPERATURES |

Section 10: Stability and Reactivity

Reactivity: Hazardous reactions will not occur under normal conditions.

Chemical Stability: The product is stable at normal handling and storage conditions.

Possibility of Hazardous Reactions: No hazards to be specially mentioned.

Conditions to Avoid: Heat, flames and sparks, Exposure to moisture. Elevated temperatures.

Incompatible Materials: Peroxides, strong acids, strong bases, strong oxidizing agents, water, metal oxides.

Hazardous Decomposition Products: Carbon oxides, nitrogen oxides.

Section 11: Toxicological Information

Information on Toxicological Effects

INHALATION: May cause mild irritation to the nose, throat and upper respiratory tract.

SKIN CONTACT: May cause mild skin irritation.

EYE CONTACT: May cause serious eye irritation.

INGESTION: May cause irritation of the gastrointestinal tract.

MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE AND DELAYED: May cause moderate to severe eye irritation.

Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause mild skin irritation. Symptoms may include redness, edema, drying, defatting and cracking of the skin. May cause mild irritation to the nose, throat and upper respiratory tract. Symptoms may include upper respiratory irritation, coughing, and breathing difficulties. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

ACUTE TOXICITY: This product is not classified as an acute toxicity hazard. See data for individual ingredient acute toxicity data.

ACUTE

DERMAL LD50: Rabbit; >5000 mg/kg

INHALATION LC50: Rat; No data in literature

ORAL LD 50: Rat; 29100 mg/kg

Skin corrosion/irritation

Serious eye damage/eye irritation - This product is not classified as a skin corrosive or irritant. Serious eye damage/eye irritation - Category 2A

Respiratory or skin sensitization Respiratory sensitization: This product is not expected to cause respiratory sensitization.

Skin sensitizer: This product is not expected to cause skin sensitization.

Germ cell mutagenicity: No data available to indicate product or any components present at greater than 0.1 % are mutagenic or genotoxic.

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

Reproductive toxicity: This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity- single exposure: Not classified as a specific target organ toxicity -single exposure.

Specific target organ toxicity- repeated exposure: Not classified as a specific target organ toxicity -repeated exposure.

Aspiration toxicity: Not expected to be an aspiration hazard.

Chronic effects: Frequent or prolonged contact may defat and dry the skin, leading to discomfort and dermatitis.

Components of this product are hazardous to aquatic life. No data is available on the product itself. See below for individual ingredient Eco toxicity data.

Section 12: Ecological Information

Information on Ecological Effects

Components of this product are hazardous to aquatic life. No data is available on the product itself. See below for individual ingredient Eco toxicity data.

Aquatic

Toxicity to fish: LC50 (Cyprinus carpio (Carp)): > 1,000 mg/l Exposure time: 96 h

Test Type: semi-static test

GLP: yes

Toxicity to daphnia and other aquatic invertebrates: EC50 (Daphnia magna (Water flea)): > 1,000 mg/l Exposure time: 48 h Test Type: static test GLP: yes

Toxicity to algae: EC50 (Desmodesmus subspicatus (green algae)): > 900 mg/l End point: Biomass

Exposure time: 72 h

Test Type: static test

GLP: yes

Toxicity to bacteria: LC 50 (Pseudomonas putida): 25,619 mg/l End point: Growth rate

Exposure time: 16 h

Test Type: Static

Method: DIN 38412

GLP: yes

Persistence and degradability Readily biodegradable.

Biodegradability rad a : aerobic

Inoculum: Activated sludge, domestic, adaption not specified

Concentration: 20 mg/l

Biodegradation: 90 %

Testing period: 9 d

Exposure time: 29 d

Remarks: Readily biodegradable

Bio concentration factor (BCF): 3.0

Remarks: Bioaccumulation is unlikely.

Partition coefficient: n-octanol/water: log Pow: -0.41

Mobility in soil

Stability in soil: Remarks: Not expected to adsorb on soil.

Other adverse effects

No data available

Regulation

40 CFR Protection of Environment; Part 82 Protection

of Stratospheric Ozone - CAA Section 602 Class I Substances

Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S.

Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information: No data available

Section 13: Disposal Considerations

Disposal Instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/ container in accordance with local/regional/national/international regulations.

Local disposal regulations Hazardous waste code: Dispose in accordance with all applicable regulations.

The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging: Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

Section 14: Transport Information

| | |
|--|----------------------------------|
| Proper Shipping Name: | SURF A LUBE™ STORAGE FLUID |
| DOT Identification Number: | Class 70 |
| NMFC Number: | 4858003 |
| Land DOT Hazard Class: | Not regulated as dangerous goods |
| Hazardous Ingredients: | None |
| NFPA Flammable and Combustible Liquids Classifi- | n/a |
| In Accordance with IMDG | Not regulated as dangerous goods |
| In Accordance with IATA | Not regulated as dangerous goods |
| In Accordance with TDG | Not regulated for transport |

Section 15: Regulatory Information

OSHA Hazard Communication Standard

OSHA HAZARDS MODERATE EYE IRRITANT

WHMIS CLASSIFICATION D2B TOXIC MATERIAL CAUSING OTHER TOXIC EFFECTS

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

TSCA Section 12(b) Export Notification (40 CFR 707, Sub pt. D) Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4) Not listed.

SARA 304 Emergency release notification Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) Not Listed

Superfund Amendments and Reauthorization Act of 1986 SARA

HAZARD CATEGORIES - Immediate Hazard - Yes

Delayed Hazard - No Fire Hazard - No

Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Hazards - Acute Health Hazard

SARA 313 (TRI reporting) - This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130) Not regulated.

Safe Drinking Water Act (SOWA) Not regulated

US state regulations

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100) Not listed.

US. Massachusetts RTK - Substance List Not regulated.

US. New Jersey Worker and Community Right-to-Know Act Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law Not listed.

US. Rhode Island RTK Not regulated. US. California Proposition 65 California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

Section 15: Regulatory Information (cont'd)

The components of this product are reported in the following inventories:

| | |
|---|--|
| United States TSCA Inventory: | y (positive listing) (On TSCA Inventory) |
| Canadian Domestic Substances List (DSL): | y (positive listing) All components of this product are on the Canadian DSL.) |
| Australia Inventory of Chemical Substances (AICS): | y (positive listing) On the inventory, or in compliance with the inventory) |
| New Zealand. Inventory of Chemical Substances: | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Japan. ENCS - Existing and New Chemical Substances Inventory: | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Korea. Korean Existing Chemicals Inventory (KECI): | y (positive listing) (On the inventory, or in compliance with the inventory) |
| Philippines Inventory of Chemicals and Chemical Substances (PICCS): | y (positive listing) (On the inventory, or in compliance with the inventory) |
| China. Inventory of Existing Chemical Substances in China (IECSC): | y (positive listing) (On the inventory, or in compliance with the inventory) |

Section 16: Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.

Rating

0 = Non Regulated

1 = Low

2 = Moderate

3 = High




4 = Extreme

| HMIS RATING | |
|-----------------|---|
| HEALTH | 1 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |
| PROTECTION | 0 |



HMIS (Hazardous Material Information Association)

NFPA (National Fire Protection System)

| | |
|---|---|
| Recommended monitoring method | None |
| Exposure controls | |
| Appropriate engineering controls | Not normally required. |
| Personal protection equipment | Wear protective eye glasses for protection against liquid splashes. |
| Eye/face protection | |
|  | |
| Skin protection | The following to be used as necessary: |
| (Hand protection/ Other) | Gloves (Neoprene or Natural rubber). |
|  | |
| Respiratory protection | No personal respiratory protective equipment normally required. In the case of vapor formation use a respirator with an approved filter. |
|  | |
| Thermal hazards | None |
| Environmental Exposure Controls | Do not allow to enter drains, sewers or watercourses. |

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws. The following specific information is made for the purpose of complying with numerous Federal, State or Provincial, and local laws and regulations. Any questions regarding this product should be directed to the manufacturer of the product as

CIRR D BOND™

Crystalized Isocyanates & Resin Remover

Crystalized Isocyanates & Resin Remover

ENVIRONMENTAL

- ⦿ DOES NOT contain raw materials known to the State of California (Prop 65) to cause cancer, birth defects or other reproductive harm
- ⦿ DOES NOT contain raw materials listed on SECTION 112(b) of HAPs List
- ⦿ REACH Compliant - Does NOT contain raw materials listed on REACH Annex
- ⦿ No SARA 311, 312, 313 Ingredients
- ⦿ Reduced VOC, Non-Flammable, Non-Hazardous, Non-Combustible, Non-Toxic

CIRR D BOND™ Crystalized Isocyanates & Resin Remover

Environmentally sensible, Low Temperature Immersion Cleaner. **It removes recently hardened and cured build-up of polymers and resins** from Spray Foam Equipment, Spray Guns, Pump Packaging, Heat Exchangers, Mixing Heads, Troughs, Conveyor Parts, Side Walls, Rollers, Foam & Resin Cutting Devices, and Injection Molds. It effectively removes;

- ~ Recently cured Isocyanates (A)
- ~ MDI and TDI esters and ethers
- ~ Residual of cured polyurethane
- ~ Cured Reactive Hot Melt Polyurethane Adhesives
- ~ Resins and Fiberglass (Polyester, Vinylester, Epoxy, Polyamide, Orthophthalic, Isophthalic, and Dicyclopentadiene)
- ~ Adhesives from roll coating and dispensing equipment, as well as other industrial adhesives

~ Layers such as High & Low Solid Aliphatic, Water Borne Epoxy Primers, Polyurethane, Acrylic, Varnishes, and Alkyl Enamel Coatings

Features & Benefits

~ Replaces NMP, Acetone, MEK, Methylene Chloride, PM Acetate, etc.

Application

Use **CIRR D BOND™ Full Strength (Do NOT add water)** at room temperature **OR** heated to a **maximum of 140 °F** in a well-ventilated area. When heated, a faster polymer and resin removal result is obtained. The use of an ultrasonic Immersion tank will enhance the loosening performance. **Must have proper ventilation system mechanical exhaust in place.**

Mechanical filtering of larger particles **using a metal mesh filter or cheesecloth** will help **extend the life of the product.**

CIRR D BOND™ is NOT intended for flushing or re-circulating the product throughout the spray foam equipment, including hoses.

To remove recently hardened Isocyanate (Part A) from the hoses, **FLUSH** with **SURF X FLUSH™ 2000** first, followed with a **FINAL FLUSH** of **NZD ISO FLUSH™ Isocyanates Cleaner & Neutralizer.**

For hand wipe applications, use **CIRR D BOND™ Crystalized Isocyanates & Resin Remover GO GREEN™ Wipes.**



TYPICAL PROPERTIES

| | |
|---|--|
| Appearance: | Clear Amber Liquid |
| Flash Point: (Pensky-Martens closed cup) | 94.45 °C or 202 °F |
| Odor: | Mild |
| pH (50% solution in water @ 68°F) | 9.80 - 10.80 |
| Vapor Pressure: (components) | ≤ 0.02 - 0.04 mmHg @ 20 °C (68 °F) |
| Initial boiling point/boiling range (@ 760 [mm Hg]) | 385 - 485 °F |
| Ideal Operating Temp (°F) | 77 - 140 °F |
| Ideal Operating Concentration | Full Strength |
| Specific Gravity @ (68°F) | 0.980 - 0.985 |
| Weight/Gal. (lbs. /gal.) | 8.20 |
| VOC Content: (ASTM D-2369, Method 24) | 6.77 lbs./gal or 811 grams/liter |
| HMIS Rating: | Health = 2 Fire = 1 Reactivity = 0 |
| Recycling Parameters: (Vacuum Distillation) @ 27 [mm Hg] Pressure | 300°F |
| Product # | 02-WV409589 |

**RECOMMENDED MATERIALS TO USE FOR:
O-Rings, Gaskets, Hoses and Pump Packaging**

- * FEP-Teflon
- * Butyl Rubber
- * Buna-S
- * Melamine
- * Nylon 101
- * Ryton
- * Ethylene-Propylene Copolymer
- * Kalrez
- * Fluorosilicone Rubber
- * Mild Steel
- * Halar

MATERIAL TO AVOID

- * Viton
- * ABS
- * Durel
- * Kynar
- * Lucite
- * PET
- * Phenolic Polyester
- * Polyurethane
- * PVC
- * Buna-N
- * Hypalon
- * Lexan
- * Noryl EN-265
- * Noryl -731
- * Polysulfone
- * Ultem
- * Valox

PACKAGING & STORAGE

HDPE UN Rated

1 Gallon EasyPour Jugs
5 Gallon Pails
55 Gallon Steel Drums (closed cap)
GO GREEN™ Wipes in an “Easy Carry Bucket”
(90 / 12 " x 12" Polypropylene Saturated Wipes)

Freight easily shipped via local carriers ground or LTL.

This product should be kept in its original container above freezing and less than 100 °F.

Store drums in a dry area.

SAFETY&HANDLING PRECAUTIONS

Refer to SDS for additional safe handling & disposal

Direct contact of CIRRD BOND™ Crystalized Isocyanates & Resin Remover will cause will cause skin irritation and eye irritation. It is important to utilize recommended gloves (Use Natural Rubber Gloves when handling this product), safety goggles and other suitable protective clothing your company recommends. Harmful if inhaled or swallowed. **Use product with adequate ventilation. Do Not take internally.** Keep out of reach of children; If splashed in eyes or on skin, wash off with plenty of water. If swallowed remove from exposure area. Never give anything by mouth to an unconscious person. Get medical advice/attention.

Refer to SDS Section 4 First Aid Measures

DISPOSAL

Refer to SDS for additional safe handling & disposal

The spent material should not be disposed of in any sewerage system. Solutions containing hazardous or non-hazardous coatings and other soils should be handled and treated according to Federal, State and Local Environmental Laws. Discharge your waste and rinse water according to Federal, State and Local Regulations.



10 Eagle Avenue - Suite 500 - Mount Holly, NJ 08060
Phone: 609-518-7577 / Fax: 609-518-5277

Section 1: Product and Company Identification

Product Form: Mixture
Product Name: D-BOND™ Adhesive Remover
Product #: 02-W289578
Intended Use of the Product: Commercial, Industrial and Professional use only. Use as directed

Manufacturer

Chemical Emergency Number: ChemTel: 1-800-255-3924

Global Specialty Products - USA, Inc.
 10 Eagle Avenue - Suite 500
 Mount Holly, New Jersey 08060
www.gsp-usa-inc.com
Telephone: 609-518-7577 **Fax:** 609-518-5277 *Mon - Fri, 8am - 5 pm PST*
Email: support@gsp-usa-inc.com

Section 2: Hazards Identification

HAZCOM Standard Status :

This material is considered hazardous by the OSHA Hazard Communication Standard (29CFR 1910.1200)

Hazard Pictograms (GHS-US)

Signal Word: Warning

GHS Classification



| | Code | Category | Statement |
|------------------------------|------|----------|--------------------------------------|
| Flammable Liquids | | | Non Flammable / Non Combustible |
| Acute Toxicity (ORAL) | H302 | 4 | Harmful if swallowed |
| Skin Irritation | H312 | 4 | Harmful in contact with skin |
| | H315 | 2 | Cause skin irritation |
| Inhalation: | H332 | 4 | Harmful if Inhaled |
| Eye irritation | H319 | 2A | Causes Serious Eye Irritation |
| Aquatic Acute Toxic | H401 | 2 | Hazardous to the aquatic environment |

Precautionary Statements (GHS-US)

General precautionary statements

P101: If medical advice is needed, have product container or label at hand;

P102: Keep out of reach of children.

P103: Read label before use.

Prevention: P260: Do not breathe vapors, mist, or spray; **P262:** Do not get in eyes, on skin, or on clothing;

P264: Wash thoroughly after handling; **P270:** Do not eat, drink or smoke when using this product; **P271:** Use only

outdoors or in a well ventilated area; **P272:** Contaminated work clothing must not be allowed out of the work-

place; **P273:** Avoid release to the environment; **P280:** Wear protective clothing, protective gloves, eye protection/

face protection.

Section 2: Hazards Identification (cont'd)

Classification of the mixture

Precautionary Statements (GHS-US) cont'd

RESPONSE:IF SWALLOWED: P301+P330+P331 Rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER/doctor/physician. **P321** - See Section 4 on SDS (First aid measures)
IF ON SKIN (OR HAIR): P303+P313+P333+P353+P361+P363 Take off immediately all contaminated clothing. Wash skin with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. **IF INHALED: P304+P340** Remove person to fresh air and keep at rest in a position comfortable for breathing. **IF IN EYES: P305+P338 +P351** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately P337 + P313 If eye irritation persists: get medical advice/attention. **STORAGE: P402: Store in a dry place. P403 + P235 Store in a well-ventilated place. Keep cool. Disposal: P501** - Dispose of contents/container in accordance with local, regional, national, territorial, provincial, and international regulations. **Other Hazards:** Exposure may irritate the respiratory tract (nose, throat, and lungs).

Section 3: Composition/Information on Ingredients

Mixture:

| Name | Product Identifier CAS # | % (w/w) |
|------------------|--------------------------|--------------|
| 2-Butoxyethoxy | 111-76-2 | *Proprietary |
| Ethylene Amines | 111-41-1 | *Proprietary |
| Benzyl Alcohol | 100-51-6 | *Proprietary |
| Triethanol Amine | 102-71-6 | *Proprietary |

Contains no other hazardous components at 1% or more as listed or defined in 29 CFR 1910, Subpart Z. Contains no components that are reported to be carcinogenic by any reference source including IARC, OSHA, NTP and EPA. * The specific chemical identity and/or exact percentage of composition have been withheld as a trade secret (29 CFR 1910.1200) This product contains other important & proprietary ingredients (co-solvents, wetting agents, corrosion inhibitor, rinsing agent, etc.) **California Prop 65 Components:** This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm. **DOES NOT contain raw materials listed on SECTION 112(b) OF HAZARDOUS AIR POLLUTANTS.**

Section 4: First Aid Measures

Description of first aid measures

General Advice:

First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists refer to Section 8 for specific personal protective equipment. Move out of dangerous area. Consult a physician. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.

Eye Contact: In case of contact, rinse immediately for at least 15 minutes with plenty of water. Seek medical attention. Suitable emergency eye wash facility should be immediately available.

Inhalation: Remove the affected individual to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Give artificial respiration if necessary. If breathing is difficult give oxygen, immediately get medical assistance.

Section 4: First Aid Measures (cont'd)

Description of first aid measures:

Skin Contact:

Immediate continued and thorough washing of contaminated skin in flowing water for at least 30 minutes is imperative while removing contaminated clothing.

Prompt medical consultation is essential.

Remove contaminated clothing and shoes.

Properly dispose of leather items such as shoes, belts, and watchbands.

Suitable emergency safety shower facility should be immediately available.

Ingestion:

Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband

Most important symptoms and effects, both acute and delayed:

Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Potential acute health effects:

Eye contact: Causes eye irritation.

Inhalation: Harmful if inhaled.

Skin contact: Causes skin irritation, Harmful in contact with skin.

Ingestion: Harmful if swallowed. May be irritating to mouth, throat and stomach

Over-exposure signs/symptoms

Eye contact: May cause irritation with symptoms of reddening, tearing and stinging.

Inhalation: May cause adverse respiratory effects including cough, tightness of chest and shortness of breath.

Skin contact: No specific data.

Ingestion: Symptoms of ingestion may include abdominal pain, nausea, vomiting and diarrhea.

Potential chronic health effects: No known significant effects or critical hazards. Notes to physician Protection of first-aiders Treat symptomatically. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

See toxicological information (Section 11)

Section 5: Fire Fighting Measures

Extinguishing media:

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire. In case of fire, use water spray (fog), Alcohol-resistant foam, Carbon dioxide (CO₂), Dry chemical

Unsuitable extinguishing media: High volume water jet / **Specific extinguishing methods:**

Use a water spray to cool fully closed containers.

Specific hazards arising from the chemical / In a fire or if heated, a pressure increase will occur and the container may burst.

Special Hazards Arising From the Substance or Mixture

Fire Hazard: Non Flammable - Non Combustible / **Explosion Hazard:** Product is not explosive / **Reactivity:** Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids, Oxidizers or Reducing agents. Dangerous fire hazard when exposed to heat or flame.

Hazardous thermal decomposition: Decomposition products may include the following materials: carbon dioxide / carbon monoxide / Carbon oxides (CO, CO₂). Irritating or toxic vapors

Section 5: Fire Fighting Measures (cont'd)

Special protective actions for fire-fighters: Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters: Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. **Further information** For safety reasons in case of fire, cans should be stored separately in closed containers.

Section 6: Accidental Release Measures

Steps To Take If Material Is Released/Spilled/Leaks

NOTE: Review Fire And Explosion Hazards and Safety Precautions before proceeding with clean up.

Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean up. Remove source of heat, sparks, flame, impact, friction or electricity.

Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe vapor, mist or spray. Spilled material may present a slipping hazard.

For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protection equipment (PPE). Emergency Procedures: Evacuate unnecessary personnel.

For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection. Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit.

Environmental Precautions Prevent liquid from entering sewers, waterways or low areas. Recover free liquid for reuse or reclamation. Recover undamaged and minimally contaminated material for reuse or reclamation. Contact competent authorities after a spill.

Methods and Material for Containment and Cleaning Up

For Containment: Contain any spills with dikes or absorbents to prevent migration and entry into sewers or streams.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Keep in suitable, closed containers for disposal.

Reference to Other Sections

See Section 8, Exposure Controls and Personal Protection. See Section 13, Disposal Considerations.

Section 7: Handling and Storage

Precautions for Safe Handling

Additional Hazards When Processed: Provide general ventilation. Where adequate ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls. If this material is handled under mist forming conditions, approved respiratory protection equipment should be used.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures. Wash hands and other exposed areas with mild soap and water before eating, drinking, or smoking and again when leaving work. Do not eat, drink or smoke when using this product.

Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Container remains hazardous when empty. Continue to observe all precautions.

Storage Conditions: Store in a dry, cool and well-ventilated place. Keep container tightly closed. Keep in original container.

Incompatible Materials: Strong Oxidizers. Reducing agents. Strong Acid.

Specific End Use (s): Commercial use. For professional use only.

Section 8: Exposure Controls/Personal Protection

Control Parameters

For substances listed in section 3 that are not listed here, there are no established Exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), NIOSH (REL), OSHA (PEL), Canadian provincial governments, or the Mexican government

Exposure Controls

Appropriate Engineering Controls: Provide general ventilation. Where adequate ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls. Site-specific risk assessments should be conducted to determine the appropriate exposure control measures. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protection

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Respiratory protection

Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. When high levels of vapors or aerosols are not controlled by local ventilation, respiratory protection is recommended. Recommended: NIOSH approved air-purifying organic vapor and acid gas respirator. For emergency and other conditions where the exposure limits may be greatly exceeded, use an approved, positive pressure self-contained breathing apparatus or supplied air. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Skin protection

Chemical-resistant gloves. Recommended: Butyl rubber gloves. Fluorinated rubber Gloves Polyvinyl chloride - PVC Gloves After contamination with product change the gloves immediately and dispose of them according to relevant national and local regulations Permeation resistant clothing and foot protection.

Eye/face protection

chemical splash goggles.

Medical Surveillance Not available.

Components with workplace control parameters

| CAS# | Components | Percentage | Value type (form of exposure) | Control parameters/Permissible concentration | Basis |
|----------|------------------|------------|----------------------------------|---|-----------|
| 111-76-2 | 2-Butoxy ethanol | 15 - 30% | TWA | 20 ppm | ACGIH |
| | | | TWA | 5 ppm / 24 mg/m ³ | NIOSH REL |
| | | | TWA | 50 ppm / 240 mg/m ³ | OSHA Z-1 |
| | | | TWA | 25 ppm / 120 mg/m ³ | OSHA P0 |

Section 9: Physical and Chemical Properties

| | |
|---|--------------------------------------|
| Appearance | Clear Amber Liquid |
| Odor | Mild |
| Odor Threshold | N/A |
| pH (50% solution in water @ 68 °F): | 9.80 - 10.80 |
| Specific Gravity (25 °C) | 0.980 - 0.985 |
| Initial boiling point and boiling range (@ 760 [mm Hg]) | 385 - 485 °F |
| Flash point (Pensky-Martins Closed Cup) | 94.45 °C or 202 °F Method |
| Evaporation rate (nBuAc = 1.00) | N/A |
| Flammability (solid, gas) | N/A |
| Upper/lower flammability or explosive limits | N/A |
| Vapor pressure (@ 25 °C [mm Hg]) | N/A |
| Vapor density | N/A |
| Relative density | N/A |
| Solubility(ies) water | Completely Miscible |
| Partion coefficient: n-octanol/water; | N/A |
| Auto-ignition temperature | N/A |
| Decomposition temperature | N/A |
| Viscosity (Centipoise @ 68 °F): (Brookfield Spindle #3, 10 RPM) | 1000 - 1500 |
| Weight/Gallon | 8.20 (lbs./ gal.) |
| Ideal Working Concentration | Full Strength - Do Not Dilute |
| Ideal Operating Temp (°F) | Room Temp. - maximum 150 °F |
| VOC Content (ASTM D-2369, Method 24) | 6.77 lbs. / gal or 811 grams / liter |

Section 10: Stability and Reactivity

Reactivity:

Hazardous reactions will not occur under normal conditions. May react vigorously with strong acids.

Chemical Stability:

The product is stable at normal handling and storage conditions.

Possibility of Hazardous Reactions:

Hazardous polymerization will not occur.

Conditions to Avoid:

Moisture. Exposure to heat, flames, sparks or other ignition. Avoid acidic conditions. Extremely high or low temperatures.

Incompatible Materials:

Strong oxidizing agents, acids. Iron, zinc, aluminum, reducing agents.

Hazardous Decomposition Products:

Thermal decomposition generates: Carbon oxides (CO, CO₂). Irritating or toxic vapors.

Section 11: Toxicological Information

Information on Toxicological Effects - Components

2-Butoxyethoxy

CAS# 111-76-2

Local Effects: Hazardous in case of skin contact (irritant).
Skin Irritation: Hazardous in case of eye contact (irritant).
Eye Irritation:

745 mg/kg [Rat]. Assessment: The component/mixture is moderately toxic after single ingestion

Acute Toxicity(LD50): 2.4 mg/l 4 hours [Rat].

Acute oral toxicity 490 mg/kg [Rabbit].

Acute dermal toxicity (LD50): Harmful by inhalation

Acute inhalation toxicity (LC50):

Serious eye damage/eye irritation **Irritating to eyes.**
Species: Rabbit Result:
Carcinogenicity

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA

NTP No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH Confirmed animal carcinogen with unknown relevance to humans

Benzyl Alcohol

CAS# 100-51-6

Information on the likely routes of exposure Dermal contact. Eye contact. Inhalation. Ingestion.

Potential acute health effects

Eye contact Causes eye irritation.
Inhalation Harmful if inhaled.
Skin contact No known significant effects or critical hazards.
Ingestion Harmful if swallowed. May be irritating to mouth, throat and stomach.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact May cause irritation with symptoms of reddening, tearing and stinging.
Inhalation May cause adverse respiratory effects including cough, tightness of chest and shortness of breath.
Skin contact No specific data.
Ingestion Symptoms of ingestion may include abdominal pain, nausea, vomiting, and diarrhea.

Potential chronic health effects

Short term exposure

Potential immediate effects Not available

Long term exposure

Potential delayed effects Not available.
General No known significant effects or critical hazards.
Carcinogenicity No known significant effects or critical hazards.
Mutagenicity No known significant effects or critical hazards.
Teratogenicity No known significant effects or critical hazards.
Developmental effects No known significant effects or critical hazards.
Fertility effects No known significant effects or critical hazards

Section 11: Toxicological Information (cont'd)

Information on Toxicological Effects - Components

Benzyl Alcohol

CAS# 100-51-6

Product Summary:

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet and the product label.

No data available for the teratogenicity, mutagenicity, or reproductive toxicity of this product.

No data available to designate the product as causing specific target organ toxicity through single or repeated exposure.

No data available to designate product as an aspiration hazard.

Symptoms or effects that may arise if the product is mishandled and overexposure occurs are:

Ingestion: Swallowing can result in nausea, vomiting, diarrhea, and abdominal pain.

Eye contact: May be an eye irritant. May cause watering of eyes and blurred vision.

Skin contact: Contact with skin may result in irritation. Will have a degreasing action on the skin. May cause skin sensitization in sensitive individuals. Repeated or prolonged skin contact may lead to allergic contact dermatitis.

Inhalation: Breathing in vapour can result in headaches, dizziness, drowsiness, and possible nausea. May cause respiratory sensitization in sensitive individuals, producing asthma like symptoms.

Acute Toxicity: Long Term Effects: No information available for the product.

Toxicological Data: Oral LD50 (rat): 1230 mg/kg / Oral LD50 (mice): 1360 mg/kg / Dermal LD50 (rabbit): 2000 mg/kg / Inhalation LC50 (rat): >4.178 mg/L/4 hour / LD50 (Oral) Rat 1,230 mg/kg / Irritation: Eyes No data available

Carcinogenicity IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Other Hazards Organ Description Eyes Irritating to the eyes.

Ingestion Harmful if ingested / **Inhalation** May be harmful if inhaled. Irritating to the respiratory tract.

Skin Harmful if absorbed through skin. Irritating to skin.

Triethanol Amine

CAS# 102-71-6

Acute Toxicity: Component

Oral LD50 (rat)

Dermal LD50 (rabbit)

Inhalation LC50 (rat) Triethanolamine 6400 mg/kg 22500 mg/kg

Carcinogenicity: IARC: Not regulated.

NTP: Not regulated.

OSHA: Not regulated.

Ethylene Amines

CAS# 111-41-1

Acute Toxicity

Component Information: Aminoethylethanolamine

LD50 Oral LD50: 2000 mg/kg (Rat)

Dermal LC50: 3560 µL/kg (Rabbit)

Inhalation: Not listed / **Toxicologically Synergistic:** No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure Irritation:

No information available / **Sensitization** May cause sensitization by skin contact

Carcinogenicity : IARC Not listed / NTP Not listed / ACGIH Not listed / OSHA Not listed / Mexico Not listed

Mutagenic Effects Not mutagenic in AMES Test

Reproductive Effects Possible risk of impaired fertility. May cause harm to the unborn child.

Developmental Effects No information available.

Teratogenicity Teratogenic effects have occurred in experimental animals.

STOT - single exposure None known / **STOT** - repeated exposure None known

Aspiration hazard No information available

Symptoms / effects, both acute and delayed Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Endocrine Disruptor Information No information available / **Other Adverse Effects** The toxicological properties have not been fully investigated. See actual entry in RTECS for complete information.

Section 12: Ecological Information

Information on Ecological Effects - Components

2-Butoxyethoxy

CAS# 111-76-2

Eco toxicity in water: (LC50): 1341 ppm, 96 hours [Fish, Lepomis acrochirus] / (EC50): 1720 mg/l, 24 hours Daphnia].

Triethanol Amine

CAS# 102-71-6

Toxicity: LC50 (rainbow trout) >11,800 mg/L/96h; EC50 (water flea) >609.9 mg/L/48h

Ethylene Amines

CAS# 111-41-1

Eco toxicity / Freshwater Algae 210 mg/L EC50 = 72 h
Freshwater Fish 728 mg/L LC50 96 h / **Microtox** EC50 = 135 mg/L 17 h
Water Flea 22 mg/L EC50 = 48 h / **Persistence and Degradability** No information available
Bioaccumulation/ Accumulation No information available.
Mobility / log Pow -1.46

Benzyl Alcohol

CAS# 100-51-6

Eco toxicity (aquatic and terrestrial, where available):
Acute Fish Toxicity (BENZYL ALCOHOL) LC50 / 96 hours Bluegill - 10 mg/L
Persistence and degradability: 92 - 96 % - Readily biodegradable.
Bio accumulative potential: No data available
Other adverse effects: Potential to become an environmental hazard is mishandled or through improper disposal.

Section 13: Disposal Considerations

Sewage Disposal Recommendations: Do not empty into drains; dispose of this material and its container in a safe way.
Waste Disposal Recommendations: The generation of waste should be avoided or minimized wherever possible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Waste disposal should be in accordance with existing federal state, provincial and or local environmental controls laws. **Waste characterizations and compliance with applicable laws are solely the responsibility of the waste generator**
Additional Information: Container remains hazardous when empty. Continue to observe all precautions. If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste. (40 CFR 261.20-24).

Section 14: Transport Information

| | |
|----------------------------|---|
| Proper Shipping Name: | CIRR D BOND™ Crystalized Isocyanates & Resin Remover |
| DOT Identification Number: | Class 70 |
| NMFC Number: | 4858003 |
| Land DOT Hazard Class: | Non Regulated (NO ODCs, NON-FLAMMABLE, NON COMBUSTIBLE, NON-CORROSIVE, WATER-MISCIBLE) |
| Hazardous Ingredients: | See Section I, VI and Section IX |
| In Accordance with IMDG | Not regulated for transport |
| In Accordance with IATA | Not regulated for transport |
| In Accordance with TDG | Not regulated for transport |

Section 15: Regulatory Information

Triethanol Amine

CAS# 102-71-6

United States Federal Regulations:

SARA TITLE III (Superfund Amendments and Reauthorization Act)

311/312 HAZARD CATEGORIES: None.

313 REPORTABLE COMPONENTS: None.

CERCLA (Comprehensive Environmental Response and Liability Act) No components are regulated by CERCLA.

TSCA (Toxic Substances Control Act): All components are on TSCA inventory.

Ethylene Amines

CAS# 111-41-1

International Inventories

TSCA: Listed / DSL: Listed / NDSL: Listed / EINECS: 203-867-5 / ELINCS: N/A / NLP: N/A / PICCS: Listed /

ENCS: Listed

AICS: Listed / IECSC: Listed / KECL: Listed

U.S. Federal Regulations

TSCA 12(b) Not applicable

SARA 313 Not applicable

SARA 311/312 Hazardous Categorization Acute Health Hazard Yes / Chronic Health Hazard Yes

Fire Hazard No / Sudden Release of Pressure Hazard No / Reactive Hazard No

Clean Water Act Not applicable / Clean Air Act Not applicable /

OSHA Occupational Safety and Health Administration Not applicable

CERCLA Not applicable

California Proposition 65 This product does not contain any Proposition 65 chemicals

State Right-to-Know

Massachusetts Listed / New Jersey Listed / Pennsylvania Listed / Illinois / Listed / Rhode Island Listed

U.S. Department of Transportation

Reportable Quantity (RQ): N / DOT Marine Pollutant N / DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations Mexico - Grade No information available

Canada This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR

WHMIS Hazard Class

E Corrosive material

D2A Very toxic materials

2-Butoxyethoxy

CAS# 111-76-2

WHMIS Classification: B3: Combustible Liquid

1A: Very Toxic Material Causing Immediate and Serious Toxic Effects

D2B: Toxic Material Causing Other Toxic Effects

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards: Fire Hazard

Immediate (Acute) Health Hazard

SARA 302:

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313:

The following components are subject to reporting levels established by SARA Title III, Section 313:

111-76-2 2-Butoxy ethanol

Section 15: Regulatory Information (cont'd)

2-Butoxyethoxy (cont'd)

CAS# 111-76-2

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 12 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

111-76-2 2-Butoxy ethanol

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307 US State Regulations

| | | | |
|------------------------------------|----------|------------------|-----------|
| Massachusetts Right To Know | 111-76-2 | 2-Butoxy ethanol | 15 - 25 % |
| Pennsylvania Right To Know | 111-76-2 | 2-Butoxy ethanol | 15 - 25 % |
| New Jersey Right To Know | 111-76-2 | 2-Butoxy ethanol | 15 - 25 % |

California Prop 65: This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other re-productive harm.

The components of this product are reported in the following inventories:

- TSCA** : On TSCA Inventory
- DSL** : All components of this product are on the Canadian DSL
- AICS** : On the inventory, or in compliance with the inventory
- NZIoC** : On the inventory, or in compliance with the inventory
- ENCS** : On the inventory, or in compliance with the inventory
- KECL** : On the inventory, or in compliance with the inventory
- PICCS** : On the inventory, or in compliance with the inventory
- IECSC** : On the inventory, or in compliance with the inventory

Section 15: Regulatory Information (cont'd)

BenzyI Alcohol

CAS# 100-51-6

SARA311/312: : Immediate (acute) health hazard
SARA Title III Section 302 Extremely Hazardous Substances: : None

SARA Title III Section 313 Toxic Chemicals : None
US EPA CERCLA Hazardous Substances (40 CFR 302) : None

State regulations

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections on the SOS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

| Ingredient name | CAS # | State Code | Concentration |
|-----------------|----------|-------------------|---------------|
| BenzyI alcohol | 100-51-6 | MA- S, PA- RTK HS | 35 - 50% |

Massachusetts Substances: MA - S

Massachusetts Extraordinary Hazardous Substances: MA - Extra HS

New Jersey Hazardous Substances: NJ - HS

Pennsylvania RTK Hazardous Substances: PA - RTK HS

Pennsylvania Special Hazardous Substances: PA - Special HS

California Prop. 65

To the best of our knowledge, **this product does not contain** any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

U.S. Toxic Substances Control Act: : Listed on the TSCA Inventory.

Section 16: Other Information

This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200.




Rating
 0 = Non Regulated
 1 = Low
 2 = Moderate
 3 = High
 4 = Extreme

| HMIS RATING | |
|-----------------|---|
| HEALTH | 2 |
| FLAMMABILITY | 1 |
| PHYSICAL HAZARD | 0 |
| PROTECTION | 0 |



HMIS (Hazardous Material Information Association)

NFPA (National Fire Protection System)

| | |
|--|---|
| Recommended monitoring method | None |
| Exposure controls | |
| Appropriate engineering controls | Provide general ventilation. Where adequate ventilation is unavailable, use process enclosures, local exhaust ventilation, or other engineering controls. If this material is handled under mist forming conditions, approved respiratory protection equipment should be used. |
| Personal protection equipment Eye/face protection |  Wear protective eye glasses for protection against liquid splashes. |
| Skin protection (Hand protection/ Other) |  The following to be used as necessary: Gloves (Neoprene or Natural rubber). |
| Respiratory protection |  Insufficient ventilation: Wear respiratory protection. Respirators - A NIOSH/MSHA approved air purifying respirator with a organic vapor cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a positive pressure air supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air purifying respirators may not provide adequate protection. |
| Thermal hazards | None |
| Environmental Exposure Controls | Do not allow to enter drains, sewers or watercourses. |

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of need that information is current, applicable and suited to the circumstance of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Regulatory requirements are subject to change and may differ from one location to another; it is the buyer's responsibility to ensure that its activities comply with Federal, State or Provincial, and local laws. The following specific information is made for the purpose of complying with numerous Federal, State or Provincial, and local laws and regulations. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Dynasolve CU-6

Urethane cleaner

Dynasolve CU-6 is a unique flushing and cleaning solvent for cured and uncured urethanes. It is nonchlorinated, nonflammable (by U.S. Department of Transportation definition), and nonozone depleting.

Cleaning applications

- Immersion cleaning of mix heads & spray guns
- Interior lines of dispensing equipment
- Molds

Advantages

- More efficient than acetone, MEK, & other solvents
- Safe & easy to work with
- High resin loading capacity allows for reuse.

Specifications

- Specific gravity: 1.06
- Boiling point: >392°F (>200°C)
- Flash point: 192°F (89°C)

Materials removed

- Foams & cast elastomers
- Adhesives
- Crystallized isocyanate

Typical usage parameters

- Room temperature soaking/immersion
- Heat to 130°–150°F (54°–65°C) for faster results.
- Use like other flushing solvents.

Material compatibility

Recommended materials including

- All metals
- Teflon®
- Polyethylene & polypropylene

Avoid materials including

- Viton®
- PVC
- Liquid isocyanate



The results of insight™

**Eastman Chemical Company
Corporate Headquarters**

P.O. Box 431
Kingsport, TN 37662-5280 U.S.A.

Telephone:
U.S.A. and Canada, 800-EASTMAN (800-327-8626)
Other Locations, (1) 423-229-2000
Fax: (1) 423-229-1193

Eastman Chemical Latin America

9155 South Dadeland Blvd.
Suite 1116
Miami, FL 33156 U.S.A.

Telephone: (1) 305-671-2800
Fax: (1) 305-671-2805

Eastman Chemical B.V.

Fascinatio Boulevard 602-614
2909 VA Capelle aan den IJssel
The Netherlands

Telephone: (31) 10 2402 111
Fax: (31) 10 2402 100

**Eastman (Shanghai) Chemical
Commercial Company, Ltd.**

Building C, No. 399 Shengxia Road,
Pudong New District
201210, Shanghai, P.R. China

Telephone: (86) 21 6120-8700
Fax: (86) 21 5027-9229

Eastman Chemical Japan Ltd.

MetLife Aoyama Building 5F
2-11-16 Minami Aoyama
Minato-ku, Tokyo 107-0062 Japan

Telephone: (81) 3-3475-9510
Fax: (81) 3-3475-9515

Eastman Chemical Asia Pacific Pte. Ltd.

9 North Buona Vista Drive
#05-01 The Metropolis Tower 1
Singapore 138588

Telephone: (65) 6831-3100
Fax: (65) 6732-4930

www.eastman.com
www.dynaloy.com

Dynaloy, LLC

6445 Olivia Lane
Indianapolis, IN 46226 U.S.A.

Telephone: (1) 317-788-5694
U.S. only: 800-669-5709

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Safety Data Sheets providing safety precautions that should be observed when handling and storing our products are available online or by request. You should obtain and review available material safety information before handling our products. If any materials mentioned are not our products, appropriate industrial hygiene and other safety precautions recommended by their manufacturers should be observed.

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Material Safety Data Sheet

HMIS Ratings
Health 2
Flammability 1
Reactivity 0
Protection X

1 Chemical Product and Company Identification

Manufacturer Information Dynaloy, Inc.
1910 South State Avenue
Indianapolis, IN 46203

Phone (317) 788-5694

Emergency Phone 1-800-424-9300
(CHEMTREC)
FOR INTERNATIONAL
CALLS
703-527-3887

Date Prepared 2004-Mar-29

Supersedes 2003-Jun-17

Product Identity Dynasolve CU-6

Product Code Number J001

Product Use Polyurethane Remover

Version # 1.0

CAS # Mixture

2 Composition / Information on Ingredients

| Ingredient Name | CAS Number | Wgt. % | Exposure Limits | | Carcinogen |
|--|------------|---------|-----------------|-----------------|------------|
| | | | PEL-OSHA | TLV-ACGIH | |
| 2-PYRROLIDINONE, 1-METHYL- | 872-50-4 | 40 - 70 | Not Established | Not Established | No |
| 2(3H)-FURANONE, DIHYDRO | 96-48-0 | 10 - 30 | Not Established | Not Established | No |
| GLYCOL ETHER EPH | 122-99-6 | 10 - 30 | Not Established | Not Established | No |
| PROPANOL, [2-(2-METHOXYMETHYLETHOXY)METH- | 25498-49-1 | 5 - 10 | Not Established | Not Established | No |
| PROPANOIC ACID, 3-ETHOXY-, ETHYL ESTER | 763-69-9 | 3 - 7 | Not Established | Not Established | No |

3 Hazards Identification

Potential Health Effects

Skin Prolonged and/or repeated skin contact with this product may cause irritation/dermatitis.

Eyes This product may cause irritation to the eyes. High concentration of product vapors can cause severe irritation of eyes.

Inhalation Exposure to oil mist/fume/vapor may cause respiratory tract irritation. Excessive inhalation of this product may cause headache, dizziness, blurred vision, nausea and vomiting.

Ingestion Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Hazard Statements

CAUTION: EYE AND SKIN IRRITANT.

4 First Aid Measures

First Aid

| | |
|-------------------|---|
| Skin | For skin contact flush with large amounts of water while removing contaminated clothing. Wash contaminated clothing before reuse. If irritation persists, get medical attention. |
| Eyes | Flush immediately with water for at least 15 minutes. Do not rub eyes. If irritation persists get medical attention. |
| Inhalation | If inhalation of gas/fume/vapor/dust/mist from the material is excessive (air concentration is greater than the TLV or health effects are noticed), immediately remove the affected person(s) to fresh air. If symptoms persist, get medical attention. |
| Ingestion | DO NOT induce vomiting unless directed to do so by medical personnel. Call a physician immediately. |

5 Fire Fighting Measures

Hazardous Combustion Products

Irritating and/or toxic gases may be emitted upon the products decomposition.

Extinguishing Media

Dry chemical (preferred), alcohol foam, water. Use water to cool fire-exposed containers and to protect personnel.

Fire Fighting Equipment/Instructions

Firefighters should wear full protective clothing including self contained breathing apparatus.

Flash Point 99 °C (210°F) CC

6 Accidental Release Measures

Containment Procedures

Dike the spilled material, where this is possible. Absorb with inert absorbent such as dry clay, sand or diatomaceous earth, commercial sorbents, or recover using pumps.

Clean-Up Procedures

Absorb spill with inert material. Shovel material into appropriate container for disposal.

7 Handling and Storage

Handling Procedures

As with all chemicals, good industrial hygiene practices should be followed when handling this material. Avoid getting this material into contact with your skin and eyes.

Storage Procedures

Keep the container tightly closed and in a cool, well-ventilated place.

8 Exposure Controls / Personal Protection

Engineering Controls

Use general ventilation and use local exhaust, where possible, in confined or enclosed spaces. Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits.

Personal Protective Equipment

Eyes/Face

Wear safety glasses; chemical goggles (if splashing is possible).

Skin

Use impervious gloves. Normal work clothing (long sleeved shirts and long pants) is recommended. Use of impervious apron and boots are recommended where splashing of the chemical is likely.

Respiratory

Respiratory protection; not normally required for ambient air concentrations not exceeding the Occupational Exposure Limit. If ventilation is not sufficient to effectively prevent buildup of vapors, appropriate NIOSH/MSHA respiratory protection must be provided

General

Eye wash fountain and emergency showers are recommended. Use good industrial hygiene practices in handling this material.

9 Physical & Chemical Properties

| | |
|-------------------------|-------------|
| Boiling Point | > 200 °C |
| Specific Gravity | 1.06 |
| Vapor Pressure | < 1 mm Hg |
| Solubility (H2O) | complete |
| VOC | 8.76 lb/gal |

10 Chemical Stability & Reactivity Information

Chemical Stability

Stable under normal conditions.

Hazardous Decomposition

None known. Irritating and/or toxic fumes and gases may be emitted upon the products decomposition.

Hazardous Polymerization

Will not occur.

Incompatibility

Strong oxidizing agents (peroxides, chlorine, strong acids).

11 Toxicological Information

Toxicological Information

No data available for this product.

12 Ecological Information

Ecological Information

No data available for this product.

Environmental Effects

No data available for this product.

13 Disposal Considerations

Disposal Instructions

Dispose of waste material according to Local, State, Federal, and Provincial Environmental Regulations.

14 Transportation Information

General

This product is not regulated as a hazardous material by the United States (DOT) or Canadian (TDG) transportation regulations.

US DOT HMR Information

| | |
|-----------------------------|---------------|
| Proper Shipping Name | Not Regulated |
|-----------------------------|---------------|

15 Regulatory Information

US Federal Regulations

All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA - Section 313 - Emission Reporting

2-PYRROLIDINONE, 1-METHYL-
ETHANOL, 2-(2-PHENOXYETHOXY)-
ETHYLENE GLYCOL PHENYL ETHER

State Regulations

Other state regulations may apply. Check individual state requirements.

California - Proposition 65 - Developmental Toxicity

2-PYRROLIDINONE, 1-METHYL-

16 Other Information

Disclaimer

NOTICE: The information presented herein is based on data considered to be accurate as of the date of preparation of this Material Safety Data Sheet. However, MSDS may not be used as a commercial specification sheet of manufacturer or seller, and no warranty or representation, expressed or implied, is made as to the accuracy or comprehensiveness of the foregoing data and safety information, nor is any authorization given or implied to practice any patented invention without a license. In addition, no responsibility can be assumed by vendor for any damage or injury resulting from abnormal use, from any failure to adhere to recommended practices, or from any hazards inherent in the nature of the product.

| | |
|--------------------|--------------------------------|
| Prepared By | Lauri Kirby, Technical Support |
|--------------------|--------------------------------|

| | |
|-------------------|-------------|
| Issue Date | 29-Mar-2004 |
|-------------------|-------------|

Stoner Molding Solutions®
You Mold It. We Release It.®

Stoner® E238 Urethane Anti-Stick Coating



Product Description

Stoner® E238 Urethane Anti-Stick Coating is specially formulated as a release agent and anti-stick lubricant for pre-treating surfaces to prevent urethane spray foam from sticking or bonding to treated equipment, window frames, pipes, and masked off work areas. Provides fast and easy cleanup of pre-treated surfaces. Improves efficiency by removing overspray of spray foam from masked off areas.

E238 Anti-Stick Coating ADVANTAGES:

- Saves time by allowing pre-treated areas to be cleaned quickly.
- Prevents spray foam from sticking to pre-treated surfaces.
- Improves surface finish on pre-treated masked off areas.
- Contains no chlorinated solvents
- Contains no ozone depleting substances.

Uses

Stoner® E238 Urethane Anti-Stick Coating is a release agent and anti-stick lubricant for molded urethanes and similar materials.

Directions for Use

Recommended Procedure

Shake well before using. Hold can 10 to 12 inches from surface. Spray a thin coating on masked off surface.

Storage and Handling

Do not puncture or incinerate container. Do not expose container to heat or store at temperatures above 120 °F. Keep container away from and do not use near sparks, open flame, heated surfaces, or other ignition sources.

Packaging

Stoner® E238 Urethane Anti-Stick Coating is available in:

- 12-can case of 12 oz cans Part # E238

Technical Assistance

Call: 800-227-5538 or 1 (717) 786-7355
Email: CustomerService@StonerMolding.com
Visit: StonerMolding.com

NO RISK GUARANTEE. Stoner Molding guarantees 100% satisfaction or your money back. If you're ever dissatisfied with any Stoner Molding product, simply return the unused portion for a full refund.



StonerMolding.com

1070 Robert Fulton Hwy. • Quarryville, PA 17566 • 1-800-227-5538 • 1-717-786-7355

Made
in USA

Safety Data Sheet

E238 Urethane Anti-Stick Coating

Stoner

Copying and/or downloading of this information for the purpose of properly utilizing Stoner Inc. product is allowed provided that: (1) the information is copied in full with no changes unless prior agreement is obtained from Stoner Inc., & (2) neither the copy nor the original is resold or otherwise distributed with intention of earning profit thereon.

1. IDENTIFICATION

Stoner Incorporated
1070 Robert Fulton Hwy.
Quarryville, PA 17566
1-800-227-5538

Product Name: Urethane Anti-Stick Coating
Product Code: E238
Product Use: Duster
24-hour emergency phone: 1-800-424-9300 [CHEMTREC]

2. HAZARD IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

GHS Hazard Symbols



GHS Classification

Gases under pressure - Compressed Gas
Aspiration Hazard Category 1
Flammable Aerosol Category 2
Skin Corrosion/Irritation Category 2
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

Signal Word

Danger

Hazard Statements

Flammable aerosol.
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause drowsiness or dizziness.

Precautionary Statements

Prevention

Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P310 - If swallowed: Immediately call a poison center, doctor or medical center.
P302+P352 - If on skin: Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P312 - Call a poison center, doctor or medical center if you feel unwell.
P321 - Specific treatment (see on this SDS).
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/attention.

Storage

Store in a well-ventilated place. Keep container tightly closed.
Store locked up.
Protect from sunlight. Store in a well-ventilated place.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/ 122°F.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>COMPONENT</u> | <u>CAS #</u> | <u>Percent</u> |
|-------------------------|--------------|----------------|
| Aliphatic hydrocarbons | 142-82-5 | 40 - 60 |
| Halogenated hydrocarbon | 75-37-6 | 10 - 30 |
| Ether propellant | 115-10-6 | 10 - 30 |
| Silicone | Mixture | 1 - 5 |

HMIS® III* HAZARDOUS WARNINGS:

| | | | | |
|-----------|-----------------|-------------|--------------------------------|---------------|
| Health: 2 | Flammability: 2 | Physical: 2 | Personal Protective Equipment: | See Section 8 |
|-----------|-----------------|-------------|--------------------------------|---------------|

* See www.paint.org/hmis or call the ACA at 1 (202) 462-6272 for more information on this current rating system.

4. FIRST AID MEASURES

| | |
|---------------|---|
| Eyes: | Immediately flush eyes gently with plenty of water for at least 15 minutes while holding eyelids apart. If symptoms persist or there is visual difficulty, seek medical attention. |
| Skin Contact: | In case of contact, immediately wash contaminated area with plenty of water for at least 15 minutes. Seek medical attention if symptoms persist. Wash clothing before reuse. For liquid contact, treat for frostbite if necessary. |
| Ingestion: | Do not induce vomiting. Aspiration into the lungs can cause serious damage. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Contact a physician, medical facility, or poison control center immediately. |
| Inhalation: | Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention. |

NOTES TO PHYSICIAN:

This material is an aspiration hazard. Potential danger from aspiration must be weighed against possible oral toxicity when deciding whether to induce vomiting. Because of possible disturbances of cardiac rhythm, catecholamine drugs, such as epinephrine, should be used only in situations of emergency life support. This material is an aspiration hazard. Aspiration during swallowing or vomiting may severely damage the lungs. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin; lung (for example, asthma-like conditions); kidney; central nervous system; auditory system; arrhythmias (irregular heartbeats);

5. FIRE FIGHTING MEASURES

| | |
|--------------------------------|--|
| Fire and/or Explosion Hazards: | This product contains a component(s) that is considered a flammable liquid, which has vapors that are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, or other flames and ignition sources at locations distant from the material's handling point. This product contains a component(s) that is considered an extremely flammable gas(es), which has vapors that are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, or other flames and ignition sources at locations distant from the material's handling point. "Empty" containers retain product residue and can be dangerous. Containers may rupture or explode under fire conditions. This material burns with difficulty, but will support combustion. |
| Fire Fighting Instructions: | Use CO ₂ , foam or dry chemical. Water is generally not effective and may spread fire; however, water spray may be used from a safe distance to cool closed containers and protect surrounding area. |

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Ventilate contaminated area. Remove all sources of ignition. Wear appropriate personal protective equipment (PPE). Stop or reduce discharge if it can be done safely. Avoid run-off into storm sewers and ditches which may lead to natural waterways. If runoff occurs, notify authorities as required. Clean up with absorbent material. Place absorbent materials into container and close it tightly. Dispose of container properly.

7. HANDLING AND STORAGE

| | |
|-----------|--|
| Handling: | Do not use near ignition sources. Normal precautions common to safe manufacturing practice should be followed in handling and storage. This material can be harmful or irritating. Avoid prolonged or repeated contact with skin. Avoid prolonged or repeated breathing of vapor. Use with adequate ventilation. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death. May cause frostbite. Usual precaution for combustible liquids. Wash hands thoroughly after handling. |
| Storage: | Store in a cool, dry, well ventilated area away from all sources of ignition. Empty container may contain residues which are hazardous. Normal precautions common to safe manufacturing practice should be followed in handling and storage. Do not store at temperatures above 122 degrees F. Store away from incompatible materials such as materials that support combustion (oxidizing materials) and corrosive materials (strong acids or bases). Store away from oxygen cylinders or other oxidizing materials and possible ignition sources. Ground all equipment and cylinders before use. This material (or a component) evolves flammable methyl alcohol when exposed to water or humid air. |

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|-------------------------|--|
| Engineering Controls: | Ventilation should be adequate to prevent exposures above the limits indicated below in this section of the SDS (from known, suspected or apparent adverse effects). |
| Eye Protection: | Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid or airborne material. Have an eye wash station available. The use of safety glasses with side shields is recommended if there is any probability of liquid contact with the eyes. |
| Skin Protection: | The use of chemically resistant gloves is recommended if there is any possibility of prolonged or repeated liquid contact with skin. |
| Respiratory Protection: | A supplied air respirator should be used if ventilation is not sufficient to maintain exposure limits. Use NIOSH approved respirator where there is likelihood of inhalation of the product mist, spray or aerosol. The use of an approved dust, fume and mist respirator designed for exposure limits greater than 0.05 mg/m ³ is recommended. |

| COMPONENT | CAS # | ACGIH TLV | OSHA PEL | OTHER |
|-------------------------|----------|-----------------|-----------------|---------------------------------|
| Aliphatic hydrocarbons | 142-82-5 | 400 ppm TWA | Not established | Not established |
| Halogenated hydrocarbon | 75-37-6 | Not established | Not established | 1000ppm TWA (Mfr.) |
| Ether propellant | 115-10-6 | Not established | Not established | 1,000 ppm 8 & 12 hr. TWA (Mfr.) |
| Silicone | Mixture | Not established | Not established | Not established |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|------------------------------|-------------------|--|-------------------|
| Physical State: | Aerosol can | Lower Flammability Limit (%): | Not applicable |
| Appearance: | Clear Colorless | Upper Flammability Limit (%): | Not applicable |
| Odor: | Light Hydrocarbon | Vapor Pressure (PSIG @ 70°F): | No data available |
| Odor Threshold: | Mild | Vapor Density [air = 1]: | >1 |
| pH: | Not applicable | Relative Density (H ₂ O=1): | 0.73 |
| Melting/Freezing Point (°F): | No data available | Solubility in Water: | Negligible; 0-1% |
| Boiling Point (°F): | No data available | Partial Coefficient: n-octanol/water: | No data available |
| Flash Point (°F PMCC): | Not applicable | Autoignition Temperature (°F): | 474 |
| Evaporation Rate: | Not determined | Decomposition Temperature (°F): | No data available |
| Flammability (solid, gas): | No data available | Viscosity, dynamic (cSt): | No data available |
| Percent VOCs (%): | 40 - 70 | | |

10. STABILITY AND REACTION

| | |
|-------------------------|--|
| Chemical Stability: | Stable. |
| Conditions to Avoid: | Avoid contact with: Ignition sources such as open flames, sparks, static discharges or glowing metal surfaces. Strong oxidizing agents. Alkali. Alkaline earth metals. Freshly abraded aluminum surfaces. Powdered metals. Oxidizers. Acetic acids Organic acid anhydrides. Moisture. |
| Decomposition Products: | Burning can produce the following combustion products: Carbon dioxide and carbon monoxide. Various hydrocarbons. This material can be decomposed by extremely high temperatures (open flames, glowing metal surfaces, etc.) forming hydrofluoric acid and carbonyl fluoride. If heated with peroxides present, violent decomposition can occur. When heated to temperatures above 150°C in the presence of air, one of the ingredients in this product can form formaldehyde vapors. Formaldehyde vapor is harmful by inhalation; irritating to eyes; sensitizer to the respiratory system; an acute toxicant and a potential cancer hazard at concentrations greater than 0.75 ppm. Formaldehyde. |

11. TOXICOLOGICAL INFORMATION

| | |
|--|--------------------|
| Reproductive & Developmental Toxicity: | No data available. |
| IARC Carcinogen Designation: | No data available |

| Ingredient | CAS # | Toxicological Data |
|-------------------------|----------|--|
| Aliphatic hydrocarbons | 142-82-5 | Dermal LD50 Rabbit > 2000 mg/kg Oral LD50 Rat > 5000 mg/kg Inhalation LC50 (4h) Rat > 73.5 MG/L No data available |
| Halogenated hydrocarbon | 75-37-6 | ORAL ALD Rat > 1500 mg/kg 4HR ALC Rat 383000 ppm No data available |
| Ether propellant | 115-10-6 | Inhalation LC50 Rat = 164000 ppm No data available |

12. ECOLOGICAL INFORMATION

| | |
|----------------------|-------------------|
| Ecological Toxicity: | No data available |
| Mobility: | No data available |

| Ingredient | CAS # | Toxicological Data |
|------------------------|----------|---|
| Aliphatic hydrocarbons | 142-82-5 | Aquatic LC50 (24h) Fish = 4 MG/L 48HR EC50 Daphnia = 1.5 MG/L 96HR EC50 Algae = 3.7 MG/L No data available |
| Ether propellant | 115-10-6 | 48HR NOEC GUPPIES > 4000 MG/L |

48HR NOEC Daphnia > 4000 MG/L
No data available

13. DISPOSAL CONSIDERATIONS

Disposal : Dispose according to Federal, State and local regulations.

14. TRANSPORTATION INFORMATION

| Agency | UN Number | Proper Shipping name | Hazard Class | Packing Group |
|--------|-----------|----------------------|--------------|----------------|
| DOT | UN1950 | Aerosols, Flammable† | 2.1 | Not applicable |
| IATA | ID8000 | Consumer Commodity† | 9 | Not applicable |
| IMDG | UN1950 | Aerosols, Flammable† | 2.1 | Not applicable |

† "Limited Quantities" may be applicable for this transportation mode.

15. REGULATORY INFORMATION

Warning: This product contains the following chemicals that are subject to reporting requirements for the following regulatory bodies listed below:

| COMPONENT | CAS # | % BY WEIGHT | Regulatory Body |
|---------------------------------------|-------|-------------|------------------|
| No components listed in this section. | | | SARA Section 313 |

Toxic Substances Control Act

All components of this product are listed on the TSCA inventory.

California Prop 65



WARNING: This product can expose you to Benzene, Cumene, Ethylbenzene, Naphthalene, which is(are) known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov. This product can expose you to Benzene, Toluene, which is(are) known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION

Other Information : SDS Prepared by L. Dean Swartz, SDS Coordinator

Version Date: 08/21/23

This information contained in this SDS is believed to be accurate as of the version date, but is not warranted to be. Since the use of this information and the conditions of use of this product are not within the control of Stoner Inc, it is the user's obligation to determine the conditions of safe use.

Stoner Molding Solutions
You Mold It. We Release It.

B505 PolyOff™

Mold Cleaner and Polyurethane Remover



Product Description

B505 PolyOff™ is a lower odor powerful formula cleaner that quick removes cured polyurethane, polyurea, and other difficult build-up from tooling, molds, and machinery. Use only on steel, aluminum and other metal tooling.

B505 PolyOff™ ADVANTAGES:

- Less odor.
- Cleans light build-up in minutes.
- Removes cured polyurethane.
- Available in a variety of sizes to meet the usage rate of any facility – 5-gallon pails and 55-gallon drums.

Uses

B505 PolyOff™ removes cured polyurethane, polyurea, and other difficult build up from tooling, molds, and machinery. Use only on steel, aluminum and other metal tooling. Useful for overnight storage of mix head parts.

Direction for Use

Recommended Procedure

Wear rubber gloves and safety goggles to protect skin and eyes. Saturate the mold build-up with B505 and allow to soak for about 8-10 hours. Soaking time may vary depending on degree of build-up and temperature of mold. Allow B505 to soak in until build-up easily wipes away with a rag or soft parts cleaning brush. Difficult areas may require second application, 24 hours of soaking, or scrubbing with soft cleaning brush or rag. Remove excess cleaner with a rag or allow to air dry. B505 is a strong cleaner which may be harmful to certain plastics, paints, or other solvent sensitive materials. Always test for compatibility before using. Immediately after use, let B505 evaporate from cloths or other applicators in a well ventilated area, away from sources of ignition. Collect and dispose of material, rags and applicators in metal container in accordance with all local, state, and federal regulations.

Storage and Handling

B505 PolyOff™ Keep container tightly closed when not in use. Store in a cool, dry, well ventilated area away from all sources of ignition. Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Do not use near ignition sources. Consult SDS for additional safety information.

Packaging

B505 PolyOff™ is available in:

- 5-gallon pail Part # B505PL
- 55-gallon drum Part # B505DR

Technical Assistance

Call: 800-227-5538 or 1 (717) 786-7355
Email: CustomerService@StonerMolding.com
Visit: StonerMolding.com

NO RISK GUARANTEE. Stoner Molding guarantees 100% satisfaction or your money back. If you're ever dissatisfied with any Stoner Molding product, simply return the unused portion for a full refund.



SAI GLOBAL
ISO 9001
Quality

StonerMolding.com

1070 Robert Fulton Hwy. • Quarryville, PA 17566 • 1-800-227-5538 • 1-717-786-7355



Made
inUSA

Safety Data Sheet

B505 PolyOff™ Polyurethane Remover

Stoner

Copying and/or downloading of this information for the purpose of properly utilizing Stoner Inc. product is allowed provided that: (1) the information is copied in full with no changes unless prior agreement is obtained from Stoner Inc., & (2) neither the copy nor the original is resold or otherwise distributed with intention of earning profit thereon.

1. IDENTIFICATION

Stoner Incorporated
1070 Robert Fulton Hwy.
Quarryville, PA 17566
1-800-227-5538

Product Name: PolyOff™ Polyurethane Remover
Product Code: B505
Product Use: Polyurethane Remover
24-hour emergency phone: 1-800-424-9300 [CHEMTREC]

2. HAZARD IDENTIFICATION

POTENTIAL HEALTH EFFECTS

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

GHS Hazard Symbols



GHS Classification

Skin Sensitisation Category 1
Reproductive Toxicity Category 1A
Aspiration Hazard Category 1
Skin Corrosion/Irritation Category 2
Serious Eye Damage/Eye Irritation Category 2A
Flammable Liquid Category 3
Specific Target Organ Systemic Toxicity (STOT) - Single Exposure Category 3

Signal Word

Danger

Hazard Statements

Flammable liquid and vapour.
May be fatal if swallowed and enters airways.
Causes skin irritation.
May cause an allergic skin reaction.
Causes serious eye irritation.
May cause respiratory irritation.
May damage fertility or the unborn child.

Precautionary Statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
Keep container tightly closed.
Ground/bond container and receiving equipment.
P241 - Use explosion-proof electrical, ventilating and lighting equipment.
Use only non-sparking tools.
Take precautionary measures against static discharge.
Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves/protective clothing/eye protection/face protection.

Response

P301+P310 - If swallowed: Immediately call a poison center, doctor or medical center.
P302+P352 - If on skin: Wash with plenty of soap and water.
IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/attention.
P312 - Call a poison center, doctor or medical center if you feel unwell.
P321 - Specific treatment (see on this SDS).
Do NOT induce vomiting.
If skin irritation occurs: Get medical advice/attention.
If skin irritation or rash occurs: Get medical advice/attention.
If eye irritation persists: Get medical advice/attention.

Wash contaminated clothing before reuse.

P370+P378 - In case of fire: Use proper media to extinguish.

Storage

Keep container tightly closed.
Store in a well-ventilated place. Keep container tightly closed.
Store in a well-ventilated place. Keep cool.
Store locked up.

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulation for hazardous wastes.

3. COMPOSITION/INFORMATION ON INGREDIENTS

| <u>COMPONENT</u> | <u>CAS #</u> | <u>Percent</u> |
|-----------------------|--------------|----------------|
| Amide ester | 872-50-4 | 60 - 80 |
| Citrus distillates | 5989-27-5 | 1-20 |
| Petroleum distillates | 64741-65-7 | 1-20 |

HMIS® III* HAZARDOUS WARNINGS:

| | | | | |
|-----------|-----------------|-------------|--------------------------------|---------------|
| Health: 2 | Flammability: 2 | Physical: 0 | Personal Protective Equipment: | See Section 8 |
|-----------|-----------------|-------------|--------------------------------|---------------|

* See www.paint.org/hmis or call the ACA at 1 (202) 462-6272 for more information on this current rating system.

4. FIRST AID MEASURES

- Eyes:** Immediately flush eyes gently with plenty of water for at least 15 minutes while holding eyelids apart. If symptoms persist or there is visual difficulty, seek medical attention.
- Skin Contact:** In case of contact, immediately wash contaminated area with plenty of water for at least 15 minutes. Seek medical attention if symptoms persist. Wash clothing before reuse.
- Ingestion:** Contact a physician, medical facility, or poison control center immediately. If vomiting occurs spontaneously, keep head below hips to prevent aspiration of liquid into lungs. Do not induce vomiting. Have victim drink 8 to 10 ounces of water to dilute the material in the stomach. Aspiration into the lungs can cause serious damage.
- Inhalation:** Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Seek immediate medical attention.

NOTES TO PHYSICIAN:

This material is an aspiration hazard. Preexisting disorders of the following organs (or organ systems) may be aggravated by exposure to this material: skin; lung (for example, asthma-like conditions); blood forming system;

5. FIRE FIGHTING MEASURES

- Fire and/or Explosion Hazards:** This product contains a component(s) that is considered a combustible liquid, which has vapors that are heavier than air and may travel along the ground or be moved by ventilation and ignited by heat, pilot lights, or other flames and ignition sources at locations distant from the material's handling point. Vapors are heavier than air and may accumulate in low areas. "Empty" containers retain product residue and can be dangerous.
- Fire Fighting Instructions:** Use CO2, foam or dry chemical. Water is generally not effective and may spread fire; however, water spray may be used from a safe distance to cool closed containers and protect surrounding area.

6. ACCIDENTAL RELEASE MEASURES

STEPS TO BE TAKEN IF MATERIAL IS RELEASED OR SPILLED:

Remove all sources of ignition. Ventilate contaminated area. Wear appropriate personal protective equipment (PPE). Stop or reduce discharge if it can be done safely. Avoid run-off into storm sewers and ditches which may lead to natural waterways. Clean up with absorbent material. Place absorbent materials into container and close it tightly. Dispose of container properly. If runoff occurs, notify authorities as required.

7. HANDLING AND STORAGE

- Handling:** Avoid prolonged or repeated breathing of vapor. Avoid prolonged or repeated contact with skin. Use with adequate ventilation. Do not use near ignition sources.
- Storage:** Keep container tightly closed when not in use. Store in a cool, dry, well ventilated area away from all sources of ignition. Normal precautions common to safe manufacturing practice should be followed in handling and storage. Empty container may contain residues which are hazardous.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|-------------------------|--|
| Engineering Controls: | Ventilation should be adequate to prevent exposures above the limits indicated below in this section of the SDS (from known, suspected or apparent adverse effects). |
| Eye Protection: | Wear chemically resistant safety glasses with side shields when handling this product. Wear additional eye protection such as chemical splash goggles and/or face shield when the possibility exists for eye contact with splashing or spraying liquid or airborne material. Have an eye wash station available. |
| Skin Protection: | The use of chemically resistant gloves is recommended if there is any possibility of prolonged or repeated liquid contact with skin. |
| Respiratory Protection: | Use NIOSH approved respirator where there is likelihood of inhalation of the product mist, spray or aerosol. A supplied air respirator should be used if ventilation is not sufficient to maintain exposure limits. |

| COMPONENT | CAS # | ACGIH TLV | OSHA PEL | OTHER |
|-----------------------|------------|-----------------|-----------------|---|
| Amide ester | 872-50-4 | Not established | Not established | 10 ppm; 40 mg/m ³ TWA (WEEL) |
| Citrus distillates | 5989-27-5 | 20 ppm TWA | Not established | Not established |
| Petroleum distillates | 64741-65-7 | 100 ppm TWA | 500 ppm | Not established |

9. PHYSICAL AND CHEMICAL PROPERTIES

| | | | |
|------------------------------|--------------------------|--|-------------------|
| Physical State: | Bulk liquid | Lower Flammability Limit (%): | 0.6 |
| Appearance: | Colorless to pale yellow | Upper Flammability Limit (%): | 9.5 |
| Odor: | Mild Amine | Vapor Pressure (PSIG @ 70°F): | No data available |
| Odor Threshold: | Moderate | Vapor Density [air = 1]: | > 1 |
| pH: | Not applicable | Relative Density (H ₂ O=1): | 0.97 |
| Melting/Freezing Point (°F): | No data available | Solubility in Water: | Not determined |
| Boiling Point (°F): | No data available | Partial Coefficient: n-octanol/water: | No data available |
| Flash Point (°F PMCC): | 116.6 | Autoignition Temperature (°F): | Not applicable |
| Evaporation Rate: | Not determined | Decomposition Temperature (°F): | No data available |
| Flammability (solid, gas): | No data available | Viscosity, dynamic (cSt): | No data available |
| Percent VOCs (%): | 80 - 100 | | |

10. STABILITY AND REACTION

| | |
|-------------------------|--|
| Chemical Stability: | Stable. |
| Conditions to Avoid: | Avoid contact with: Reducing agents. Strong alkalis. Strong mineral acids. Strong oxidizing agents. Ignition sources such as open flames, sparks, static discharges or glowing metal surfaces. |
| Decomposition Products: | Burning can produce the following combustion products: Carbon dioxide and carbon monoxide. Nitrogen compounds. Various hydrocarbons. |

11. TOXICOLOGICAL INFORMATION

| | |
|--|--------------------|
| Reproductive & Developmental Toxicity: | No data available. |
| IARC Carcinogen Designation: | No data available |

| Ingredient | CAS # | Toxicological Data |
|--------------------|-----------|--|
| Amide ester | 872-50-4 | ORAL LD50 Rat 3914 mg/kg |
| Citrus distillates | 5989-27-5 | DERMAL LD50 Rabbit 5 GM/KG ORAL LD50 Rat 4400 mg/kg ORAL LD50 Mouse 5600 mg/kg |

12. ECOLOGICAL INFORMATION

| | |
|----------------------|--|
| Ecological Toxicity: | Severe ecological hazard. This product may be toxic to plants and/or wildlife. |
| Mobility: | No data available |

| Ingredient | CAS # | Toxicological Data |
|-----------------------|------------|---|
| Citrus distillates | 5989-27-5 | Aquatic LC50 (96h) MINNOW 1 - 1 mg/L 48HR EC50 Daphnia = 70 mg/L No data available |
| Petroleum distillates | 64741-65-7 | Aquatic LC50 Bl gill > 1000 mg/L 24HR EC50 Daphnia > 1000 mg/L 24HR EC50 AQUATIC PLANTS > 1000 mg/L |

13. DISPOSAL CONSIDERATIONS

Disposal : Dispose according to Federal, State and local regulations.

14. TRANSPORTATION INFORMATION

| Agency | UN Number | Proper Shipping name | Hazard Class | Packing Group |
|--------|-----------|-------------------------------|--------------|---------------|
| DOT | UN1268 | Petroleum distillates, n.o.s. | 3 | III |
| IATA | UN1268 | Petroleum distillates, n.o.s. | 3 | III |
| IMDG | UN1268 | Petroleum distillates, n.o.s. | 3 | III |

15. REGULATORY INFORMATION

Warning: This product contains the following chemicals that are subject to reporting requirements for the following regulatory bodies listed below:

| COMPONENT | CAS # | % BY WEIGHT | Regulatory Body |
|---------------------------------------|-------|-------------|------------------|
| No components listed in this section. | | | SARA Section 313 |

Toxic Substances Control Act

All components of this product are listed on the TSCA inventory.

California Prop 65



WARNING: This product can expose you to n-Methyl Pyrrolidinone, which is(are) known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

16. OTHER INFORMATION

Other Information : SDS Prepared by L. Dean Swartz, SDS Coordinator

Version Date: 06/06/18

This information contained in this SDS is believed to be accurate as of the version date, but is not warranted to be. Since the use of this information and the conditions of use of this product are not within the control of Stoner Inc, it is the user's obligation to determine the conditions of safe use.

O'REILLY BRAKE PARTS CLEANER 14 OZ.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 05/18/2015

Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form : Mixture
Trade name : O'REILLY BRAKE PARTS CLEANER 14 OZ.
Product code : ORC72408

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Brake Parts Cleaner

1.3. Details of the supplier of the safety data sheet

O'Reilly Auto Parts
233 South Patterson
Springfield, Missouri 65802
T 417-862-2674

1.4. Emergency telephone number

Emergency number : CHEMTREC 24 Hour 1-800-424-9300, 1-703-527-3887 (International)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (GHS-US)

Flam. Aerosol 2 H223
Compressed gas H280
Acute Tox. 3 (Oral) H301
Acute Tox. 3 (Dermal) H311
Skin Irrit. 2 H315
Eye Irrit. 2A H319
Repr. 2 H361
STOT SE 1 H370
STOT SE 3 H336
STOT RE 2 H373

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US) :



Signal word (GHS-US) :

Danger

Hazard statements (GHS-US) :

H223 - Flammable aerosol
H280 - Contains gas under pressure; may explode if heated
H301+H311 - Toxic if swallowed or in contact with skin
H315 - Causes skin irritation
H319 - Causes serious eye irritation
H336 - May cause drowsiness or dizziness
H361 - Suspected of damaging fertility or the unborn child
H370 - Causes damage to organs
H373 - May cause damage to organs through prolonged or repeated exposure

Precautionary statements (GHS-US) :

P201 - Obtain special instructions
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, sparks, open flames, hot surfaces. - No smoking
P211 - Do not spray on an open flame or other ignition source
P251 - Pressurized container: Do not pierce or burn, even after use
P260 - Do not breathe dust, fumes, gas, mist, vapor spray
P261 - Avoid breathing dust, fume, gas, mist, vapor spray
P264 - Wash affected areas thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P271 - Use only outdoors or in a well-ventilated area
P280 - Wear protective gloves, protective clothing, eye protection, face protection
P301+P310 - If swallowed: Immediately call a poison control center, doctor, physician,
P302+P352 - If on skin: Wash with plenty of soap and water
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

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P307+P311 - If exposed: Call a poison center/doctor
P308+P313 - If exposed or concerned: Get medical advice/attention
P312 - Call a POISON CONTROL CENTER, doctor, if you feel unwell.
P314 - Get medical advice/attention if you feel unwell
P321 - Specific treatment: See section 4.1 on SDS
P330 - Rinse mouth
P332+P313 - If skin irritation occurs: Get medical advice/attention
P337+P313 - If eye irritation persists: Get medical advice/attention
P361 - Take off immediately all contaminated clothing
P362 - Take off contaminated clothing and wash before reuse
P363 - Wash contaminated clothing before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P410+P403 - Protect from sunlight. Store in a well-ventilated place
P410+P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F
P501 - Dispose of contents/container to appropriate waste disposal facility, in accordance with local, regional, national, international regulations.

2.3. Other hazards

Other hazards not contributing to the classification : Contains gas under pressure; may explode if heated.

2.4. Unknown acute toxicity (GHS-US)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

| Name | Product identifier | % | Classification (GHS-US) |
|---|--------------------|---------|--|
| Toluene | (CAS No) 108-88-3 | 30 - 50 | Flam. Liq. 2, H225 Skin Irrit. 2, H315 Repr. 2, H361 STOT SE 3, H336 STOT RE 2, H373 Asp. Tox. 1, H304 |
| Methanol | (CAS No) 67-56-1 | 30 - 50 | Flam. Liq. 2, H225 Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311 Acute Tox. 3 (Inhalation:dust,mist), H331 STOT SE 1, H370 |
| Acetone | (CAS No) 67-64-1 | 10 - 30 | Flam. Liq. 2, H225 Eye Irrit. 2A, H319 STOT SE 3, H336 |
| Carbon Dioxide, Liquefied, Under Pressure | (CAS No) 124-38-9 | 5 - 10 | Compressed gas, H280 |

The exact percentage is a trade secret.

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Never give anything by mouth to an unconscious person. IF exposed or concerned: Get medical advice/attention. Call a POISON CENTER or doctor/physician.

First-aid measures after inhalation : Cough. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

First-aid measures after skin contact : Immediately call a poison center or doctor/physician. Remove/Take off immediately all contaminated clothing. Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Remove contact lenses, if present and easy to do. Continue rinsing. Rinse cautiously with water for several minutes. Obtain medical attention if pain, blinking or redness persist. Direct contact with the eyes is likely to be irritating.

First-aid measures after ingestion : Rinse mouth. Do NOT induce vomiting. Obtain emergency medical attention. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries : Irritation of the respiratory tract. If you feel unwell, seek medical advice. Suspected of damaging fertility or the unborn child. Causes damage to organs.

Symptoms/injuries after inhalation : Coughing. Irritation of the respiratory tract. Shortness of breath. May cause drowsiness or dizziness.

Symptoms/injuries after skin contact : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin. Causes skin irritation.

Symptoms/injuries after eye contact : May cause severe irritation. Irritation of the eye tissue. Inflammation/damage of the eye tissue. Redness of the eye tissue. Causes serious eye irritation.

O'REILLY BRAKE PARTS CLEANER 14 OZ.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Symptoms/injuries after ingestion : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard.

4.3. Indication of any immediate medical attention and special treatment needed

No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Foam. Dry powder. Carbon dioxide. Water spray. Sand.
Unsuitable extinguishing media : Do not use a heavy water stream.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Flammable aerosol.
Explosion hazard : Heat may build pressure, rupturing closed containers, spreading fire and increasing risk of burns and injuries.

5.3. Advice for firefighters

Firefighting instructions : Use water spray or fog for cooling exposed containers. Exercise caution when fighting any chemical fire. Prevent fire-fighting water from entering environment. DO NOT fight fire when fire reaches explosives. Evacuate area.
Protection during firefighting : Do not enter fire area without proper protective equipment, including respiratory protection.
Other information : Aerosol Level 2.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : No open flames. No smoking. Isolate from fire, if possible, without unnecessary risk. Remove ignition sources. Use special care to avoid static electric charges.

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Safety glasses.
Emergency procedures : Evacuate unnecessary personnel.

6.1.2. For emergency responders

Protective equipment : Equip cleanup crew with proper protection. Avoid breathing dust, fume, gas, mist, vapor spray.
Emergency procedures : Ventilate area.

6.2. Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if liquid enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

For containment : Dam up the liquid spill. Plug the leak, cut off the supply. Contain released substance, pump into suitable containers.
Methods for cleaning up : Store away from other materials.

6.4. Reference to other sections

See Heading 8. Exposure controls and personal protection.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Additional hazards when processed : Hazardous waste due to potential risk of explosion. Pressurized container: Do not pierce or burn, even after use.
Precautions for safe handling : Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Provide good ventilation in process area to prevent formation of vapor. Do not spray on an open flame or other ignition source. Obtain special instructions . Do not handle until all safety precautions have been read and understood. Avoid breathing dust, fume, gas, mist, vapor spray. Use only outdoors or in a well-ventilated area. Do not breathe dust, fumes, gas, mist, vapor spray.
Hygiene measures : Wash contaminated clothing before reuse. Always wash hands after handling the product. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Do not eat, drink or smoke when using this product. Wash affected areas thoroughly after handling.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures : Comply with applicable regulations. Proper grounding procedures to avoid static electricity should be followed.
Storage conditions : Keep only in the original container in a cool, well ventilated place away from : Do not expose to temperatures exceeding 50 °C/ 122 °F. Keep in fireproof place. Keep container tightly closed.
Incompatible products : Strong bases. Strong acids.
Incompatible materials : Sources of ignition. Direct sunlight. Heat sources.

O'REILLY BRAKE PARTS CLEANER 14 OZ.

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Storage area : Store in a well-ventilated place.

7.3. Specific end use(s)

Follow Label Directions.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

| Benzene (71-43-2) | | |
|--|-------------------------------------|------------------------|
| USA ACGIH | ACGIH TWA (ppm) | 1 ppm |
| USA ACGIH | ACGIH STEL (ppm) | 5 ppm |
| USA ACGIH | ACGIH Ceiling (ppm) | 25 ppm |
| USA OSHA | OSHA PEL (TWA) (ppm) | 1 ppm |
| USA OSHA | OSHA PEL (Ceiling) (ppm) | 5 ppm |
| Toluene (108-88-3) | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 75 mg/m ³ |
| USA ACGIH | ACGIH TWA (ppm) | 20 ppm |
| USA OSHA | OSHA PEL (TWA) (ppm) | 200 ppm |
| USA OSHA | OSHA PEL (Ceiling) (ppm) | 300 ppm |
| Carbon Dioxide, Liquefied, Under Pressure (124-38-9) | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 9000 mg/m ³ |
| USA ACGIH | ACGIH TWA (ppm) | 5000 ppm |
| USA ACGIH | ACGIH STEL (mg/m ³) | 54000 |
| USA ACGIH | ACGIH STEL (ppm) | 30000 ppm |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 9000 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (ppm) | 5000 ppm |
| Acetone (67-64-1) | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 1188 mg/m ³ |
| USA ACGIH | ACGIH TWA (ppm) | 500 ppm |
| USA ACGIH | ACGIH STEL (mg/m ³) | 1782 mg/m ³ |
| USA ACGIH | ACGIH STEL (ppm) | 750 ppm |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 2400 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (ppm) | 1000 ppm |
| Methanol (67-56-1) | | |
| USA ACGIH | ACGIH TWA (mg/m ³) | 262 mg/m ³ |
| USA ACGIH | ACGIH TWA (ppm) | 200 ppm |
| USA ACGIH | ACGIH STEL (mg/m ³) | 328 mg/m ³ |
| USA ACGIH | ACGIH STEL (ppm) | 250 ppm |
| USA OSHA | OSHA PEL (TWA) (mg/m ³) | 260 mg/m ³ |
| USA OSHA | OSHA PEL (TWA) (ppm) | 200 ppm |

8.2. Exposure controls

Appropriate engineering controls : Local exhaust ventilation, vent hoods . Ensure good ventilation of the work station.
Personal protective equipment : Gloves. Safety glasses. Avoid all unnecessary exposure.



Hand protection : Wear protective gloves.
Eye protection : Chemical goggles or safety glasses.
Skin and body protection : Wear suitable protective clothing.
Respiratory protection : Where exposure through inhalation may occur from use, respiratory protection equipment is recommended.
Other information : Do not eat, drink or smoke during use.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

| | |
|---|--|
| Physical state | : Gas |
| Appearance | : Liquid. |
| Color | : Colourless to light yellow. |
| Odor | : Solvent-like odour. |
| Odor threshold | : No data available |
| pH | : No data available |
| Relative evaporation rate (butyl acetate=1) | : No data available |
| Melting point | : < -78.9 °C (Lowest Component-Acetone) |
| Freezing point | : No data available |
| Boiling point | : 56 °C (Lowest Component-Acetone) |
| Flash point | : -18 °C (Lowest Component-Acetone) |
| Auto-ignition temperature | : 385 °C (Lowest Component-Acetone) |
| Decomposition temperature | : No data available |
| Flammability (solid, gas) | : No data available |
| Vapor pressure | : No data available |
| Relative vapor density at 20 °C | : No data available |
| Relative density | : 0.82 |
| Solubility | : Moderately soluble in water. |
| Log Pow | : No data available |
| Log Kow | : No data available |
| Viscosity, kinematic | : No data available |
| Viscosity, dynamic | : No data available |
| Explosive properties | : Heating may cause a fire or explosion. |
| Oxidizing properties | : No data available |
| Explosion limits | : 2.5 - 12.8 vol % |

9.2. Other information

| | |
|-------------|-----------------|
| VOC content | : 70.1 % |
| Gas group | : Liquefied gas |

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Flammable aerosol. Contains gas under pressure; may explode if heated. Extreme risk of explosion by shock, friction, fire or other sources of ignition.

10.3. Possibility of hazardous reactions

Not established.

10.4. Conditions to avoid

Direct sunlight. Extremely high or low temperatures. Heat. Sparks. Open flame. Overheating.

10.5. Incompatible materials

Strong acids. Strong bases.

10.6. Hazardous decomposition products

Toxic fume. . Carbon monoxide. Carbon dioxide.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Oral: Toxic if swallowed. Dermal: Toxic in contact with skin.

| Benzene (71-43-2) | |
|----------------------------|--|
| LD50 oral rat | > 930 mg/kg (Rat; Equivalent or similar to OECD 401; Literature study; > 2000 mg/kg bodyweight; Rat; Experimental value) |
| LD50 dermal rabbit | > 8240 mg/kg (Rabbit; Experimental value; 21 CFR 191.10; > 9.4; Rabbit) |
| LC50 inhalation rat (mg/l) | 43.767 mg/l/4h (Rat; Experimental value) |
| LC50 inhalation rat (ppm) | 13700 ppm/4h (Rat; Experimental value) |

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| Toluene (108-88-3) | |
|----------------------------|---|
| LD50 oral rat | 5580 mg/kg body weight (Rat; Equivalent or similar to OECD 401; Literature study; 5580 mg/kg bodyweight; Rat; Experimental value) |
| LD50 dermal rabbit | > 5000 mg/kg body weight LD50 quoted as 14.1 mL/kg (12267 mg/kg using density of 0.87) |
| LC50 inhalation rat (mg/l) | > 28.1 mg/l/4h (Rat; Air, Literature study) |

| Acetone (67-64-1) | |
|----------------------------|---|
| LD50 oral rat | 5800 mg/kg (Rat; Equivalent or similar to OECD 401; Experimental value) |
| LD50 dermal rabbit | 20000 mg/kg (Rabbit; Experimental value; Equivalent or similar to OECD 402) |
| LC50 inhalation rat (mg/l) | 71 mg/l/4h (Rat; Experimental value; 76 mg/l/4h; Rat; Experimental value) |
| LC50 inhalation rat (ppm) | 30000 ppm/4h (Rat; Experimental value) |

| Methanol (67-56-1) | |
|----------------------------|---|
| LD50 oral rat | >= 2528 mg/kg body weight application as 50% aqueous solution |
| LD50 dermal rabbit | 17100 mg/kg corresponding to 20 ml/kg bw according to the authors |
| LC50 inhalation rat (mg/l) | 128.2 mg/l/4h Air |

| | |
|-----------------------------------|---|
| Skin corrosion/irritation | : Causes skin irritation. |
| Serious eye damage/irritation | : Causes serious eye irritation. |
| Respiratory or skin sensitization | : Not classified |
| Germ cell mutagenicity | : Not classified Based on available data, the classification criteria are not met |
| Carcinogenicity | : Not classified |

| Benzene (71-43-2) | |
|--------------------------|---|
| IARC group | 1 |

| Toluene (108-88-3) | |
|---------------------------|---|
| IARC group | 3 |

| | |
|---|---|
| Reproductive toxicity | : Suspected of damaging fertility or the unborn child. |
| Specific target organ toxicity (single exposure) | : Causes damage to organs. May cause drowsiness or dizziness. |
| Specific target organ toxicity (repeated exposure) | : May cause damage to organs through prolonged or repeated exposure. |
| Aspiration hazard | : Not classified |
| Potential Adverse human health effects and symptoms | : Based on available data, the classification criteria are not met. Toxic if swallowed. Toxic in contact with skin. |
| Symptoms/injuries after inhalation | : Coughing. Irritation of the respiratory tract. Shortness of breath. May cause drowsiness or dizziness. |
| Symptoms/injuries after skin contact | : Repeated exposure to this material can result in absorption through skin causing significant health hazard. Toxic in contact with skin. Causes skin irritation. |
| Symptoms/injuries after eye contact | : May cause severe irritation. Irritation of the eye tissue. Inflammation/damage of the eye tissue. Redness of the eye tissue. Causes serious eye irritation. |
| Symptoms/injuries after ingestion | : Toxic if swallowed. Swallowing a small quantity of this material will result in serious health hazard. |

SECTION 12: Ecological information

12.1. Toxicity

| Benzene (71-43-2) | |
|--------------------------|---|
| LC50 fish 1 | 5.3 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss) |
| EC50 Daphnia 1 | 18 mg/l (24 h; Daphnia magna) |
| LC50 fish 2 | 15.1 mg/l (96 h; Pimephales promelas) |
| EC50 Daphnia 2 | 10 mg/l (48 h; Daphnia magna) |
| TLM fish 1 | 22.5 mg/l (96 h; Lepomis macrochirus; Soft water) |
| TLM fish 2 | 32 mg/l (96 h; Pimephales promelas; Hard water) |
| Threshold limit algae 1 | 100 mg/l (72 h; Pseudokirchneriella subcapitata; GLP) |
| Threshold limit algae 2 | 50 mg/l (24 h; Phaeodactylum; Photosynthesis) |

| Toluene (108-88-3) | |
|---------------------------|--|
| LC50 fish 1 | 24 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss) |
| EC50 Daphnia 1 | 84 mg/l (24 h; Daphnia magna; Locomotor effect) |
| LC50 fish 2 | 13 mg/l (96 h; Lepomis macrochirus) |
| EC50 Daphnia 2 | 11.5 - 19.6 mg/l (48 h; Daphnia magna) |
| Threshold limit algae 1 | > 400 mg/l (168 h; Scenedesmus quadricauda; Toxicity test) |
| Threshold limit algae 2 | 105 mg/l (192 h; Microcystis aeruginosa) |

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| Carbon Dioxide, Liquefied, Under Pressure (124-38-9) | |
|---|---|
| LC50 fish 1 | 35 mg/l (96 h; Salmo gairdneri (Oncorhynchus mykiss); Lethal) |
| LC50 fish 2 | 60 - 240 mg/l (12 h; Salmo gairdneri (Oncorhynchus mykiss); Lethal) |
| Acetone (67-64-1) | |
| TLM fish 1 | 13000 ppm (96 h; Gambusia affinis; Turbulent water) |
| TLM fish 2 | > 1000 ppm (96 h; Pisces) |
| Threshold limit other aquatic organisms 1 | 3000 mg/l (Plankton) |
| Threshold limit other aquatic organisms 2 | 28 mg/l (Protozoa) |
| Threshold limit algae 1 | 7500 mg/l (Scenedesmus quadricauda; pH = 7) |
| Threshold limit algae 2 | 3400 mg/l (48 h; Chlorella sp.) |
| Acetone (67-64-1) | |
| LC50 fish 1 | 6210 mg/l (96 h; Pimephales promelas; Nominal concentration) |
| EC50 Daphnia 1 | 8800 mg/l (48 h; Daphnia pulex) |
| LC50 fish 2 | 5540 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss) |
| TLM fish 1 | 13000 ppm (96 h; Gambusia affinis; Turbulent water) |
| TLM fish 2 | > 1000 ppm (96 h; Pisces) |
| Threshold limit other aquatic organisms 1 | 3000 mg/l (Plankton) |
| Threshold limit other aquatic organisms 2 | 28 mg/l (Protozoa) |
| Threshold limit algae 1 | 7500 mg/l (Scenedesmus quadricauda; pH = 7) |
| Threshold limit algae 2 | 3400 mg/l (48 h; Chlorella sp.) |
| Methanol (67-56-1) | |
| LC50 fish 1 | 15400 mg/l (96 h; Lepomis macrochirus; Lethal) |
| EC50 Daphnia 1 | > 10000 mg/l (48 h; Daphnia magna; Lethal) |
| LC50 fish 2 | 10800 mg/l 96 h; Salmo gairdneri (Oncorhynchus mykiss) |
| EC50 Daphnia 2 | 24500 mg/l (48 h; Daphnia magna; Locomotor effect) |
| Threshold limit other aquatic organisms 1 | 6600 mg/l (16 h; Pseudomonas putida) |
| Threshold limit algae 1 | 530 mg/l (192 h; Microcystis aeruginosa) |
| Threshold limit algae 2 | 8000 mg/l (168 h; Scenedesmus quadricauda) |
| 12.2. Persistence and degradability | |
| O'REILLY BRAKE PARTS CLEANER 14 OZ. | |
| Persistence and degradability | Not established. |
| Benzene (71-43-2) | |
| Persistence and degradability | Readily biodegradable in water. Ozonation in water. Forming sediments in water. Biodegradable in the soil. Low potential for adsorption in soil. Photolysis in the air. |
| Biochemical oxygen demand (BOD) | 2.18 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 2.15 g O ₂ /g substance |
| ThOD | 3.10 g O ₂ /g substance |
| BOD (% of ThOD) | 0.70 % ThOD |
| Toluene (108-88-3) | |
| Persistence and degradability | Readily biodegradable in water. Biodegradable in the soil. Low potential for adsorption in soil. |
| Biochemical oxygen demand (BOD) | 2.15 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 2.52 g O ₂ /g substance |
| ThOD | 3.13 g O ₂ /g substance |
| BOD (% of ThOD) | 0.69 % ThOD |
| Carbon Dioxide, Liquefied, Under Pressure (124-38-9) | |
| Persistence and degradability | Biodegradability: not applicable. Not applicable (gas). |
| Biochemical oxygen demand (BOD) | Not applicable |
| Chemical oxygen demand (COD) | Not applicable |
| ThOD | Not applicable |
| BOD (% of ThOD) | Not applicable |
| Acetone (67-64-1) | |
| Persistence and degradability | Not established. |
| Acetone (67-64-1) | |
| Persistence and degradability | Readily biodegradable in water. Biodegradable in the soil. Biodegradable in the soil under anaerobic conditions. No (test)data on mobility of the substance available. Not established. |
| Biochemical oxygen demand (BOD) | 1.43 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 1.92 g O ₂ /g substance |
| ThOD | 2.20 g O ₂ /g substance |

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| Acetone (67-64-1) | |
|---------------------------------|---|
| BOD (% of ThOD) | (20 day(s)) 0.872 |
| Methanol (67-56-1) | |
| Persistence and degradability | Readily biodegradable in water. Biodegradable in the soil. Highly mobile in soil. |
| Biochemical oxygen demand (BOD) | 0.6 - 1.12 g O ₂ /g substance |
| Chemical oxygen demand (COD) | 1.42 g O ₂ /g substance |
| ThOD | 1.5 g O ₂ /g substance |
| BOD (% of ThOD) | 0.8 % ThOD |

12.3. Bioaccumulative potential

| O'REILLY BRAKE PARTS CLEANER 14 OZ. | |
|--|------------------|
| Bioaccumulative potential | Not established. |

| Benzene (71-43-2) | |
|-------------------------------|--|
| BCF fish 1 | 19 Salmo gairdneri (Oncorhynchus mykiss) |
| BCF fish 2 | < 10 (3 days; Leuciscus idus) |
| BCF other aquatic organisms 1 | 30 (24 h; Chlorella sp.; Fresh weight) |
| Log Pow | 2.13 (Experimental value) |
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |

| Toluene (108-88-3) | |
|-------------------------------|--|
| BCF fish 1 | 13.2 (Anguilla japonica) |
| BCF fish 2 | 90 (72 h; Leuciscus idus) |
| BCF other aquatic organisms 1 | 380 (24 h; Chlorella sp.; Fresh weight) |
| BCF other aquatic organisms 2 | 4.2 (Mytilus edulis; Fresh weight) |
| Log Pow | 2.73 (Experimental value; Other; 20 °C) |
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |

| Carbon Dioxide, Liquefied, Under Pressure (124-38-9) | |
|---|----------------------------------|
| Log Pow | 0.83 (Experimental value) |
| Bioaccumulative potential | Bioaccumulation: not applicable. |

| Acetone (67-64-1) | |
|---------------------------|------------------|
| Bioaccumulative potential | Not established. |

| Acetone (67-64-1) | |
|-------------------------------|---------------------------------------|
| BCF fish 1 | 0.69 (Pisces) |
| BCF other aquatic organisms 1 | 3 |
| Log Pow | -0.24 (Test data) |
| Bioaccumulative potential | Not bioaccumulative. Not established. |

| Methanol (67-56-1) | |
|---------------------------|--|
| BCF fish 1 | < 10 (72 h; Leuciscus idus) |
| BCF fish 2 | 1 (72 h; Cyprinus carpio; Blood) |
| Log Pow | -0.77 (Experimental value; Other) |
| Bioaccumulative potential | Low potential for bioaccumulation (BCF < 500). |

12.4. Mobility in soil

| Benzene (71-43-2) | |
|--------------------------|-------------------|
| Surface tension | 0.029 N/m (20 °C) |

| Toluene (108-88-3) | |
|---------------------------|------------------|
| Surface tension | 0.03 N/m (20 °C) |

| Acetone (67-64-1) | |
|--------------------------|--------------------|
| Surface tension | 0.0237 N/m (20 °C) |

| Methanol (67-56-1) | |
|---------------------------|-------------------|
| Surface tension | 0.023 N/m (20 °C) |

12.5. Other adverse effects

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : Dispose in a safe manner in accordance with local/national regulations. Container under pressure. Do not drill or burn even after use. Dispose of contents/container to appropriate waste disposal facility, in accordance with local, regional, national, international regulations.

Additional information : Flammable vapors may accumulate in the container.

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Ecology - waste materials : Avoid release to the environment. Hazardous waste due to toxicity.

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

US DOT (ground): UN1950, Aerosols, 2.1, Limited Quantity
ICAO/IATA (air): UN1950, Aerosols, 2.1, Limited Quantity
IMO/IMDG (water): UN1950, Aerosols, 2.1, Limited Quantity
Special Provisions: N82 - See 173.306 of this subchapter for classification criteria for flammable aerosols.

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Aerosols
flammable, (each not exceeding 1 L capacity)
Transport hazard class(es) (DOT) : 2.1 - Class 2.1 - Flammable gas 49 CFR 173.115
Hazard labels (DOT) : 2.1 - Flammable gas



DOT Special Provisions (49 CFR 172.102) : N82 - See 173.306 of this subchapter for classification criteria for flammable aerosols.
DOT Packaging Exceptions (49 CFR 173.xxx) : 306
DOT Packaging Non Bulk (49 CFR 173.xxx) : None
DOT Packaging Bulk (49 CFR 173.xxx) : None

14.3. Additional information

Other information : No supplementary information available.

Overland transport

No additional information available

Transport by sea

DOT Vessel Stowage Location : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other : 48 - Stow "away from" sources of heat. 87 - Stow "separated from" Class 1 (explosives) except Division 14, 126 - Segregation same as for Class 9, miscellaneous hazardous materials

Air transport

DOT Quantity Limitations Passenger aircraft/rail : 75 kg
(49 CFR 173.27)
DOT Quantity Limitations Cargo aircraft only (49 : 150 kg
CFR 175.75)

SECTION 15: Regulatory information

15.1. US Federal regulations

| O'REILLY BRAKE PARTS CLEANER 14 OZ. | |
|---|--|
| SARA Section 311/312 Hazard Classes | Delayed (chronic) health hazard Fire hazard Immediate (acute) health hazard Sudden release of pressure hazard |
| Benzene (71-43-2) | |
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| Toluene (108-88-3) | |
| Listed on United States SARA Section 313 Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 | |
| SARA Section 311/312 Hazard Classes | Delayed (chronic) health hazard Fire hazard Immediate (acute) health hazard |
| Carbon Dioxide, Liquefied, Under Pressure (124-38-9) | |
| SARA Section 311/312 Hazard Classes | Sudden release of pressure hazard Immediate (acute) health hazard |

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| Acetone (67-64-1) | |
|---|---|
| Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on United States SARA Section 313 | |
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard Fire hazard Delayed (chronic) health hazard |

| Methanol (67-56-1) | |
|---|---|
| Listed on United States SARA Section 313 Listed on the United States TSCA (Toxic Substances Control Act) inventory Listed on the United States SARA Section 302 Listed on the United States SARA Section 355 | |
| SARA Section 311/312 Hazard Classes | Immediate (acute) health hazard Delayed (chronic) health hazard Fire hazard |

15.2. International regulations

CANADA

| O'REILLY BRAKE PARTS CLEANER 14 OZ. | |
|--|--|
| WHMIS Classification | Class B Division 5 - Flammable Aerosol |

| Benzene (71-43-2) | |
|---|--|
| Listed on the Canadian DSL (Domestic Substances List) | |

| Toluene (108-88-3) | |
|---|--|
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects |

| Acetone (67-64-1) | |
|---|--|
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Class B Division 2 - Flammable Liquid Class D Division 2 Subdivision B - Toxic material causing other toxic effects |

| Methanol (67-56-1) | |
|---|---|
| Listed on the Canadian DSL (Domestic Substances List) | |
| WHMIS Classification | Class B Division 2 - Flammable Liquid Class D Division 1 Subdivision B - Toxic material causing immediate and serious toxic effects Class D Division 2 Subdivision A - Very toxic material causing other toxic effects Class D Division 2 Subdivision B - Toxic material causing other toxic effects |

EU-Regulations

| Toluene (108-88-3) | |
|--|--|
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) | |

| Acetone (67-64-1) | |
|--|--|
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)- Directive 79/831/EEC, sixth Amendment of Directive 67/548/EEC (dangerous substances) Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) | |

| Methanol (67-56-1) | |
|--|--|
| Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances) | |

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Classification according to Directive 67/548/EEC [DSD] or 1999/45/EC [DPD]

Repr.Cat.3; R63
F; R11
T; R23/24/25
T; R39/23/24/25
Xn; R48/20
Xi; R36/38

Full text of R-phrases: see section 16

15.2.2. National regulations

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Benzene (71-43-2)

Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on KECI (Korean Existing Chemicals Inventory)
 Listed on NZIoC (New Zealand Inventory of Chemicals)
 Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory

Toluene (108-88-3)

Acetone (67-64-1)

Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
 Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
 Listed on KECI (Korean Existing Chemicals Inventory)
 Listed on the AICS (Australian Inventory of Chemical Substances)
 Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
 Listed on the Korean ECL (Existing Chemicals List)

Methanol (67-56-1)

Listed on the Canadian IDL (Ingredient Disclosure List)

15.3. US State regulations

O'REILLY BRAKE PARTS CLEANER 14 OZ.

| | |
|---|---|
| U.S. - California - Proposition 65 - Carcinogens List | No |
| U.S. - California - Proposition 65 - Developmental Toxicity | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Female | No |
| U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No |
| State or local regulations | U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) |

Benzene (71-43-2)

| | | | | |
|---|---|---|---|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
| Yes | Yes | No | Yes | |

Toluene (108-88-3)

| | | | | |
|---|---|---|---|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
| No | Yes | Yes | No | |

Carbon Dioxide, Liquefied, Under Pressure (124-38-9)

| | | | | |
|---|---|---|---|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
| No | No | No | No | |

Acetone (67-64-1)

| | | | | |
|---|---|---|---|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
| No | No | No | No | |

Acetone (67-64-1)

| | | | | |
|---|---|---|---|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - Female | U.S. - California - Proposition 65 - Reproductive Toxicity - Male | No significance risk level (NSRL) |
| Yes | No | No | No | |

Methanol (67-56-1)

| | | | | |
|---|---|--|--|-----------------------------------|
| U.S. - California - Proposition 65 - Carcinogens List | U.S. - California - Proposition 65 - Developmental Toxicity | U.S. - California - Proposition 65 - Reproductive Toxicity - | U.S. - California - Proposition 65 - Reproductive Toxicity - | No significance risk level (NSRL) |
|---|---|--|--|-----------------------------------|

O'REILLY BRAKE PARTS CLEANER 14 OZ.

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| Methanol (67-56-1) | | | | |
|--------------------|-----|--------|------|--|
| | | Female | Male | |
| No | Yes | No | No | |

| Benzene (71-43-2) | | | | |
|---|--|--|--|--|
| State or local regulations | | | | |
| U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) U.S. - Pennsylvania - RTK (Right to Know) List New Jersey Right-to-Know | | | | |

| Toluene (108-88-3) | | | | |
|--|--|--|--|--|
| State or local regulations | | | | |
| U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) U.S. - New Jersey - Special Health Hazards Substances List New Jersey Right-to-Know U.S. - Massachusetts - Right To Know List Rhode Island Right to Know U.S. - Michigan - Critical Materials List U.S. - New Jersey - Environmental Hazardous Substances List U.S. - Illinois - Toxic Air Contaminants U.S. - New York - Reporting of Releases Part 597 - List of Hazardous Substances U.S. - Pennsylvania - RTK (Right to Know) - Environmental Hazard List | | | | |

| Acetone (67-64-1) | | | | |
|---|--|--|--|--|
| State or local regulations | | | | |
| U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) Benzene 71-43-2 U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List | | | | |

| Methanol (67-56-1) | | | | |
|---|--|--|--|--|
| State or local regulations | | | | |
| U.S. - California - Proposition 65 - Maximum Allowable Dose Levels (MADL) New Jersey Right-to-Know Florida Right to Know U.S. - Massachusetts - Right To Know List U.S. - Pennsylvania - RTK (Right to Know) List | | | | |

SECTION 16: Other information

Indication of changes : Revision - See : *.
Other information : NFPA Aerosol Level 3. None.
Full text of H-phrases:

| | |
|-------------------------------------|---|
| Acute Tox. 3 (Dermal) | Acute toxicity (dermal) Category 3 |
| Acute Tox. 3 (Inhalation:dust,mist) | Acute toxicity (inhalation:dust,mist) Category 3 |
| Acute Tox. 3 (Oral) | Acute toxicity (oral) Category 3 |
| Asp. Tox. 1 | Aspiration hazard Category 1 |
| Compressed gas | Gases under pressure Compressed gas |
| Eye Irrit. 2A | Serious eye damage/eye irritation Category 2A |
| Flam. Aerosol 2 | Flammable aerosol Category 2 |
| Flam. Liq. 2 | Flammable liquids Category 2 |
| Repr. 2 | Reproductive toxicity Category 2 |
| Skin Irrit. 2 | Skin corrosion/irritation Category 2 |
| STOT RE 2 | Specific target organ toxicity (repeated exposure) Category 2 |
| STOT SE 1 | Specific target organ toxicity (single exposure) Category 1 |
| STOT SE 3 | Specific target organ toxicity (single exposure) Category 3 |
| H223 | Flammable aerosol |
| H225 | Highly flammable liquid and vapor |
| H280 | Contains gas under pressure; may explode if heated |
| H301 | Toxic if swallowed |
| H304 | May be fatal if swallowed and enters airways |
| H311 | Toxic in contact with skin |
| H315 | Causes skin irritation |
| H319 | Causes serious eye irritation |
| H331 | Toxic if inhaled |
| H336 | May cause drowsiness or dizziness |

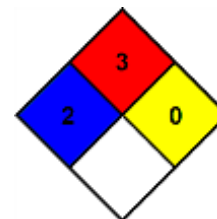
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| | |
|------|---|
| H361 | Suspected of damaging fertility or the unborn child |
| H370 | Causes damage to organs |
| H373 | May cause damage to organs through prolonged or repeated exposure |

- NFPA health hazard : 2 - Intense or continued exposure could cause temporary incapacitation or possible residual injury unless prompt medical attention is given.
- NFPA fire hazard : 3 - Liquids and solids that can be ignited under almost all ambient conditions.
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



HMIS III Rating

- Health : 2 Moderate Hazard - Temporary or minor injury may occur
- Flammability : 3 Serious Hazard
- Physical : 1 Slight Hazard
- Personal Protection : B

SDS US (GHS HazCom 2012) - TCC

The Supplier identified in Section 1 of this MSDS has evaluated this product and certifies it to be labeled and packaged in compliance with the applicable provisions of the Federal Hazardous Substance Act as stated in 16 CFR 1500 and enforced by the Consumer Product Safety Commission, and where applicable the products that require Child Resistant Closures are packaged in accordance with the Poison Prevention Packaging Act as stated in 16 CFR 1700 and enforced by the Consumer Product Safety Commission. All closures have been tested in accordance with the latest protocols. No other testing is required to certify compliance with the above. The date of manufacture is stamped on the product

Disclaimer: The information and recommendations contained herein are based upon tests believed to be reliable. However, the manufacturer/distributor of this product does not guarantee their accuracy or completeness NOR SHALL ANY OF THIS INFORMATION CONSTITUTE A WARRANTY, WHETHER EXPRESSED OR IMPLIED, AS TO THE SAFETY OF THE GOODS, THE MERCHANTABILITY OF THE GOODS, OR THE FITNESS OF THE GOODS FOR A PARTICULAR PURPOSE. Adjustment to conform to actual conditions of usage may be required. The manufacturer/distributor assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied.

SAFETY DATA SHEET

WL01050QD

Section 1. Identification

Product name : 1050QD Siliconized Acrylic Latex Caulk

Product code : WL01050QD

Other means of identification : Not available.

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Paint or paint related material.

Manufacturer : THE SHERWIN-WILLIAMS COMPANY
101 W. Prospect Avenue
Cleveland, OH 44115

Emergency telephone number of the company : US / Canada: (800) 424-9300
Mexico: SETIQ 800-00-214-00 / 55-5559-1588 Available 24 hours and 365 days a year

Product Information Telephone Number : US / Canada: 1-800-474-3794
Mexico: Not Available

Transportation Emergency Telephone Number : US / Canada: (800) 424-9300
Mexico: SETIQ 800-00-214-00 / 55-5559-1588 Available 24 hours and 365 days a year

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : SKIN CORROSION/IRRITATION - Category 2
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A
CARCINOGENICITY - Category 1A
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3
SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
Percentage of the mixture consisting of ingredient(s) of unknown acute toxicity: 1.3% (oral), 2.4% (dermal), 2.4% (inhalation)

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May cause cancer.
May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

Date of issue/Date of revision : 2/5/2024 **Date of previous issue** : 9/17/2023

WL01050QD 1050QD Siliconized Acrylic Latex Caulk

Version : 25 1/14

SHW-85-NA-GHS-US

Section 2. Hazards identification

- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves, protective clothing and eye or face protection. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Wash thoroughly after handling.
- Response** : IF exposed or concerned: Get medical advice or attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor if you feel unwell. Take off contaminated clothing and wash it before reuse. IF ON SKIN: Wash with plenty of water. If skin irritation occurs: Get medical advice or attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice or attention.
- Storage** : Store locked up. Store in a well-ventilated place. Keep container tightly closed.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Supplemental label elements** WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. Adequate ventilation required when sanding or abrading the dried film. If Adequate ventilation cannot be provided wear an approved particulate respirator (NIOSH approved). Follow respirator manufacturer's directions for respirator use. DELAYED EFFECTS FROM LONG TERM OVEREXPOSURE. Abrading or sanding of the dry film may release Crystalline Silica which has been shown to cause lung damage and cancer under long term exposure. Please refer to the SDS for additional information. Keep out of reach of children. Do not transfer contents to other containers for storage.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.
- CAS number/other identifiers**

| Ingredient name | % by weight | CAS number |
|---------------------------------------|-------------|------------|
| Calcium Carbonate | ≥50 - ≤75 | 1317-65-3 |
| Light Aliphatic Hydrocarbon | ≤3 | 64742-47-8 |
| Titanium Dioxide | ≤3 | 13463-67-7 |
| Crystalline Silica, non-respirable | ≤1 | 14808-60-7 |
| Crystalline Silica, respirable powder | <1 | 14808-60-7 |

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.

Section 4. First aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use an extinguishing agent suitable for the surrounding fire.
- Unsuitable extinguishing media** : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Section 6. Accidental release measures

- Large spill** : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

- Protective measures** : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Advice on general occupational hygiene** : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

- Conditions for safe storage, including any incompatibilities** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits (OSHA United States)

| Ingredient name | CAS # | Exposure limits |
|-----------------------------|------------|---|
| Calcium Carbonate | 1317-65-3 | OSHA PEL (United States, 5/2018). TWA: 5 mg/m ³ 8 hours. Form: Respirable fraction TWA: 15 mg/m ³ 8 hours. Form: Total dust NIOSH REL (United States, 10/2020). [calcium carbonate] TWA: 5 mg/m ³ 10 hours. Form: Respirable fraction TWA: 10 mg/m ³ 10 hours. Form: Total |
| Light Aliphatic Hydrocarbon | 64742-47-8 | ACGIH TLV (United States, 1/2023). [Kerosene as total hydrocarbon vapor] Absorbed through skin. TWA: 200 mg/m ³ , (as total hydrocarbon vapor) 8 hours. |
| Titanium Dioxide | 13463-67-7 | OSHA PEL (United States, 5/2018). TWA: 15 mg/m ³ 8 hours. Form: Total dust ACGIH TLV (United States, 1/2023). TWA: 2.5 mg/m ³ 8 hours. Form: respirable fraction, finescale particles |

Section 8. Exposure controls/personal protection

| | | |
|---------------------------------------|------------|---|
| Crystalline Silica, non-respirable | 14808-60-7 | <p>OSHA PEL (United States, 5/2018). [Silica, crystalline] TWA: 50 µg/m³ 8 hours. Form: Respirable dust</p> <p>OSHA PEL Z3 (United States, 6/2016). TWA: 30 mg/m³ / (%SiO₂+2) 8 hours. Form: Total dust</p> |
| Crystalline Silica, respirable powder | 14808-60-7 | <p>OSHA PEL Z3 (United States, 6/2016). TWA: 250 mppcf / (%SiO₂+5) 8 hours. Form: Respirable</p> <p>TWA: 10 mg/m³ / (%SiO₂+2) 8 hours. Form: Respirable</p> <p>OSHA PEL (United States, 5/2018). [Silica, crystalline] TWA: 50 µg/m³ 8 hours. Form: Respirable dust</p> <p>ACGIH TLV (United States, 1/2023). [Silica, crystalline] TWA: 0.025 mg/m³ 8 hours. Form: Respirable fraction</p> <p>NIOSH REL (United States, 10/2020). [SILICA, CRYSTALLINE (AS RESPIRABLE DUST)] TWA: 0.05 mg/m³ 10 hours. Form: respirable dust</p> |

Occupational exposure limits (Canada)

| Ingredient name | CAS # | Exposure limits |
|---|------------|---|
| Petroleum refining, hydrotreated light distillate | 64742-47-8 | <p>CA British Columbia Provincial (Canada, 6/2022). [Kerosene/Jet fuels as total hydrocarbon vapour] Absorbed through skin. Notes: Application restricted to conditions in which there are negligible aerosol exposures. TWA: 200 mg/m³, (as total hydrocarbon vapour) 8 hours.</p> <p>CA Alberta Provincial (Canada, 6/2018). [Kerosene/Jet fuels as total hydrocarbon vapour] Absorbed through skin. 8 hrs OEL: 200 mg/m³, (as total hydrocarbon vapour) 8 hours.</p> <p>CA Ontario Provincial (Canada, 6/2019). Absorbed through skin. TWA: 200 mg/m³, (as total hydrocarbon vapour) 8 hours.</p> |
| Quartz | 14808-60-7 | <p>CA Quebec Provincial (Canada, 6/2022). [Silica Crystalline -Quartz] TWA_{EV}: 0.1 mg/m³ 8 hours. Form: Respirable dust.</p> |
| Quartz | 14808-60-7 | <p>CA British Columbia Provincial (Canada, 6/2022). [Silica, Crystalline - alpha quartz and Cristobalite Respirable] TWA: 0.025 mg/m³ 8 hours. Form: Respirable</p> <p>CA Quebec Provincial (Canada, 6/2022).</p> |

Section 8. Exposure controls/personal protection

| | | |
|--|--|--|
| | | <p>[Silica Crystalline -Quartz] TWAEV: 0.1 mg/m³ 8 hours. Form: Respirable dust. CA Alberta Provincial (Canada, 6/2018). 8 hrs OEL: 0.025 mg/m³ 8 hours. Form: Respirable particulate CA Ontario Provincial (Canada, 6/2019). [Silica, Crystalline (Quartz/Tripoli)] TWA: 0.1 mg/m³ 8 hours. Form: Respirable particulate matter. CA Saskatchewan Provincial (Canada, 7/2013). TWA: 0.05 mg/m³ 8 hours. Form: respirable fraction</p> |
|--|--|--|

Occupational exposure limits (Mexico)

| | CAS # | Exposure limits |
|-----------------------------|--------------|---|
| Light Aliphatic Hydrocarbon | 64742-47-8 | <p>ACGIH TLV (United States, 1/2023). [Kerosene as total hydrocarbon vapor] Absorbed through skin. TWA: 200 mg/m³, (as total hydrocarbon vapor) 8 hours.</p> |

Biological exposure indices (United States)

No exposure indices known.

Biological exposure indices (Canada)

No exposure indices known.

Biological exposure indices (Mexico)

No exposure indices known.

Appropriate engineering controls

: Use only with adequate ventilation. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls

: Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

: Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

: Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Section 8. Exposure controls/personal protection

- Hand protection** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- Body protection** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Other skin protection** : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory protection** : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Section 9. Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

Appearance

- Physical state** : Liquid.
- Color** : Not available.
- Odor** : Not available.
- Odor threshold** : Not available.
- pH** : 9
- Melting point/freezing point** : Not available.
- Boiling point, initial boiling point, and boiling range** : 100°C (212°F)
- Flash point** : Closed cup: Not applicable.
- Evaporation rate** : 0.13 (butyl acetate = 1)
- Flammability** : Not available.
- Lower and upper explosion limit/flammability limit** : Lower: 1%
Upper: 6%
- Vapor pressure** : 2.3 kPa (17.5 mm Hg)
- Relative vapor density** : 1 [Air = 1]
- Relative density** : 1.64
- Solubility(ies)** :

| Media | Result |
|------------|-------------------|
| cold water | Partially soluble |

- Partition coefficient: n-octanol/water** : Not applicable.
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Viscosity** : Kinematic (40°C (104°F)): >20.5 mm²/s (>20.5 cSt)
- Molecular weight** : Not applicable.
- Heat of combustion** : 2.719 kJ/g

Section 10. Stability and reactivity

- Reactivity** : No specific test data related to reactivity available for this product or its ingredients.
- Chemical stability** : The product is stable.
- Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.
- Conditions to avoid** : No specific data.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

| Product/ingredient name | Result | Species | Score | Exposure | Observation |
|-------------------------|----------------------|---------|-------|-------------------|-------------|
| Titanium Dioxide | Skin - Mild irritant | Human | - | 72 hours 300 ug l | - |

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Classification

| Product/ingredient name | OSHA | IARC | NTP |
|---------------------------------------|------|------|---------------------------------|
| Titanium Dioxide | - | 2B | - |
| Crystalline Silica, non-respirable | + | 1 | Known to be a human carcinogen. |
| Crystalline Silica, respirable powder | + | 1 | Known to be a human carcinogen. |

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Section 11. Toxicological information

| Name | Category | Route of exposure | Target organs |
|-----------------------------|------------|-------------------|------------------------------|
| Calcium Carbonate | Category 3 | - | Respiratory tract irritation |
| Light Aliphatic Hydrocarbon | Category 3 | - | Respiratory tract irritation |
| | Category 3 | | Narcotic effects |

Specific target organ toxicity (repeated exposure)

| Name | Category | Route of exposure | Target organs |
|---------------------------------------|------------|-------------------|---------------|
| Light Aliphatic Hydrocarbon | Category 2 | - | - |
| Crystalline Silica, respirable powder | Category 1 | inhalation | - |

Aspiration hazard

| Name | Result |
|-----------------------------|--------------------------------|
| Light Aliphatic Hydrocarbon | ASPIRATION HAZARD - Category 1 |

Information on the likely routes of exposure : Not available.

Potential acute health effects

- Eye contact** : Causes serious eye irritation.
- Inhalation** : May cause respiratory irritation.
- Skin contact** : Causes skin irritation.
- Ingestion** : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
respiratory tract irritation
coughing
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
- Ingestion** : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

Section 11. Toxicological information

- General** : May cause damage to organs through prolonged or repeated exposure.
- Carcinogenicity** : May cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : No known significant effects or critical hazards.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

| Route | ATE value |
|-------|-----------------|
| Oral | 274774.85 mg/kg |

Section 12. Ecological information

Toxicity

| Product/ingredient name | Result | Species | Exposure |
|---|---------------------------------------|-------------------------------------|----------|
| Light Aliphatic Hydrocarbon Titanium Dioxide | Acute LC50 2200 µg/l Fresh water | Fish - <i>Lepomis macrochirus</i> | 4 days |
| | Acute LC50 >1000000 µg/l Marine water | Fish - <i>Fundulus heteroclitus</i> | 96 hours |

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

- Soil/water partition coefficient (K_{oc})** : Not available.

- Other adverse effects** : No known significant effects or critical hazards.

Section 13. Disposal considerations

- Disposal methods** : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

| | DOT Classification | TDG Classification | Mexico Classification | IATA | IMDG |
|-----------------------------------|-----------------------|-----------------------|--------------------------|----------------|----------------|
| UN number | Not regulated. | Not regulated. | Not regulated. | Not regulated. | Not regulated. |
| UN proper shipping name | - | - | - | - | - |
| Transport hazard class(es) | - | - | - | - | - |
| Packing group | - | - | - | - | - |
| Environmental hazards | No. | No. | No. | No. | No. |
| Additional information | - | - | - | - | - |

Special precautions for user : Multi-modal shipping descriptions are provided for informational purposes and do not consider container sizes. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

Transport in bulk according to IMO instruments : Not available.

Proper shipping name : Not available.

Section 15. Regulatory information

SARA 313

SARA 313 (40 CFR 372.45) supplier notification can be found on the Environmental Data Sheet, where applicable.

California Prop. 65

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

International regulations

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Section 15. Regulatory information

International lists :

- Australia inventory (AIIIC):** Not determined.
- China inventory (IECSC):** Not determined.
- Japan inventory (CSCL):** Not determined.
- Japan inventory (ISHL):** Not determined.
- Korea inventory (KECI):** Not determined.
- New Zealand Inventory of Chemicals (NZIoC):** Not determined.
- Philippines inventory (PICCS):** Not determined.
- Taiwan Chemical Substances Inventory (TCSI):** Not determined.
- Thailand inventory:** Not determined.
- Turkey inventory:** Not determined.
- Vietnam inventory:** Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)

| | | |
|------------------|---|---|
| Health | * | 3 |
| Flammability | | 0 |
| Physical hazards | | 0 |
| | | |

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

Procedure used to derive the classification

| Classification | Justification |
|--|--------------------|
| SKIN CORROSION/IRRITATION - Category 2 | Calculation method |
| SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2A | Calculation method |
| CARCINOGENICITY - Category 1A | Calculation method |
| SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3 | Calculation method |
| SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2 | Calculation method |

History

Date of printing : 2/5/2024

Date of issue/Date of revision : 2/5/2024

Date of previous issue : 9/17/2023

Version : 25

Key to abbreviations :

- ATE = Acute Toxicity Estimate
- BCF = Bioconcentration Factor
- GHS = Globally Harmonized System of Classification and Labelling of Chemicals
- IATA = International Air Transport Association
- IBC = Intermediate Bulk Container
- IMDG = International Maritime Dangerous Goods
- LogPow = logarithm of the octanol/water partition coefficient
- MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
- N/A = Not available
- SGG = Segregation Group
- UN = United Nations

Section 16. Other information

Indicates information that has changed from previously issued version.

Notice to reader

It is recommended that each customer or recipient of this Safety Data Sheet (SDS) study it carefully and consult resources, as necessary or appropriate, to become aware of and understand the data contained in this SDS and any hazards associated with the product. This information is provided in good faith and believed to be accurate as of the effective date herein. However, no warranty, express or implied, is given. The information presented here applies only to the product as shipped. The addition of any material can change the composition, hazards and risks of the product. Products shall not be repackaged, modified, or tinted except as specifically instructed by the manufacturer, including but not limited to the incorporation of products not specified by the manufacturer, or the use or addition of products in proportions not specified by the manufacturer. Regulatory requirements are subject to change and may differ between various locations and jurisdictions. The customer/buyer/user is responsible to ensure that his activities comply with all country, federal, state, provincial or local laws. The conditions for use of the product are not under the control of the manufacturer; the customer/buyer/user is responsible to determine the conditions necessary for the safe use of this product. The customer/buyer/user should not use the product for any purpose other than the purpose shown in the applicable section of this SDS without first referring to the supplier and obtaining written handling instructions. Due to the proliferation of sources for information such as manufacturer-specific SDS, the manufacturer cannot be responsible for SDSs obtained from any other source.

ENVIRONMENTAL DATA SHEET

(Certified Product Data Sheet)

Date of Preparation
Feb 5, 2024

32 00 [0364]

PRODUCT NUMBER

WL01050QD

PRODUCT NAME

1050QD Siliconized Acrylic Latex Caulk

MANUFACTURER'S NAME

THE SHERWIN-WILLIAMS COMPANY
101 W. Prospect Avenue
Cleveland, OH 44115

This document includes all data required by 40 CFR 63.801(a) for a Certified Product Data Sheet under criteria specified in 40 CFR 63.805(a). All data given below are MAXIMUM THEORETICAL VALUES based on the product AS CURRENTLY FORMULATED. Variations may occur on individual batches due to adjustments made during production.

Hazard Category (for SARA 311.312)

WL01050QD = | Acute | Chronic |

Product Weight

13.68 lb/gal

Specific Gravity

1.65

FLASH POINT

N.A.

Volatile Ingredients

| Chemical / Compound | SARA 302 EHS | CERCLA | SARA 313 TC | HAPS 112 | % by Weight | % by Volume |
|---|--------------|--------|-------------|----------|-------------|-------------|
| Light Aliphatic Hydrocarbon 64742-47-8 | N | N | N | N | 1 | 3 |
| Water 7732-18-5 | N | N | N | N | 15 | 25 |

Volatile Organic Compounds - U.S. EPA / Canada

| | WL01050QD | |
|---------------------------|------------|------------|
| | LB/Gal | g/L |
| Coating Density | 13.68 | 1638 |
| | By wt | By vol |
| Total Volatiles | 16.7% | 29.3% |
| Federally exempt solvents | | |
| Water | 14.5% | 23.9% |
| Organic Volatiles | 2.1% | 4.1% |
| Percent Non-Volatile | 83.3% | 70.7% |
| VOC Content | LB/Gal | g/L |
| Total | 0.28 | 34 |
| Less exempt solvents | 0.37 | 45 |
| Of solids | 0.40 | 48 |
| Of solids | 0.02 lb/lb | 0.02 kg/kg |
| | By wt | |
| By wt LVP-VOC | 1.3% | |

Maximum Incremental Reactivity (MIR) (per US EPA Aerosol Ctg Rule, MIR Values 2009) **0.03**

Volatile Organic Compounds - California

| | WL01050QD | |
|----------------------|------------|------------|
| | LB/Gal | g/L |
| Coating Density | 13.68 | 1638 |
| | By wt | By vol |
| Total Volatiles | 16.7% | 29.3% |
| Exempt solvents | | |
| Water | 14.5% | 23.9% |
| Organic Volatiles | 2.1% | 4.1% |
| Percent Non-Volatile | 83.3% | 70.7% |
| VOC Content | LB/Gal | g/L |
| Total | 0.28 | 34 |
| Less exempt solvents | 0.37 | 45 |
| Of solids | 0.40 | 48 |
| Of solids | 0.02 lb/lb | 0.02 kg/kg |
| | By wt | |
| By wt LVP-VOC | 1.3% | |

Maximum Incremental Reactivity (MIR) (per California Air Resources Board Aerosol Products Regulation, MIR Values 2010) **0.03**

Volatile Organic Compounds - South Coast Air Quality Management District, California, US

| | WL01050QD | |
|----------------------|------------|------------|
| | LB/Gal | g/L |
| Coating Density | 13.68 | 1638 |
| | By wt | By vol |
| Total Volatiles | 16.7% | 29.3% |
| Exempt solvents | | |
| Water | 14.5% | 23.9% |
| Organic Volatiles | 2.1% | 4.1% |
| Percent Non-Volatile | 83.3% | 70.7% |
| VOC Content | LB/Gal | g/L |
| Total | 0.28 | 34 |
| Less exempt solvents | 0.37 | 45 |
| Of solids | 0.40 | 48 |
| Of solids | 0.02 lb/lb | 0.02 kg/kg |

Volatile Organic Compounds - EU Directive 2004/42/EC

| | WL01050QD | |
|-----------------|-----------|--------|
| | By wt | By vol |
| Total Volatiles | 16.9% | 29.7% |
| VOC Content | LB/Gal | g/L |
| Total | 0.31 | 37 |

Volatile Organic Compounds - EU Directive 2010/75/EU

| | WL01050QD | |
|-----------------|-----------|--------|
| | By wt | By vol |
| Total Volatiles | 16.6% | 29.2% |
| VOC Content | LB/Gal | g/L |
| Total | 0.28 | 33 |

Volatile Organic Compounds - Mexico

| | WL01050QD | |
|----------------------|------------|------------|
| | LB/Gal | g/L |
| Coating Density | 13.68 | 1638 |
| | By wt | By vol |
| Total Volatiles | 16.7% | 29.3% |
| Exempt solvents | | |
| Water | 14.5% | 23.9% |
| Organic Volatiles | 2.1% | 4.1% |
| Percent Non-Volatile | 83.3% | 70.7% |
| VOC Content | LB/Gal | g/L |
| Total | 0.28 | 34 |
| Less exempt solvents | 0.37 | 45 |
| Of solids | 0.40 | 48 |
| Of solids | 0.02 lb/lb | 0.02 kg/kg |

Hazardous Air Pollutants (Clean Air Act, Section 112(b))

| | WL01050QD | |
|---------------|------------|------------|
| | LB/Gal | kg/L |
| Volatile HAPS | 0.00 | 0.000 |
| Of solids | 0.00 | 0.000 |
| Of solids | 0.00 lb/lb | 0.00 kg/kg |

Air Quality Data

Density of Organic Solvent Blend

6.94 lb/gal

Photochemically Reactive

No

Waste Disposal

Waste from this product is not hazardous as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261.

Addition of reducers or other additives to this product may substantially alter the above data. Since conditions of use are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information.

SAFETY DATA SHEET



Date Issued : 02/01/2019
SDS No : 1070
Date Revised : 02/05/2019
Revision No : 1

Diocetyl phthalate

1. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Diocetyl phthalate

MANUFACTURER

Shrieve Chemical Company
 1755 Woodstead Ct.
 The Woodlands, TX 77380

Emergency Contact: Audris King

Emergency Phone: (800) 424-9300

Alternate Contact: Sue Shelver

Customer Service: (800) 367-4226

24 HR. EMERGENCY TELEPHONE NUMBERS

Poison Control Center (Medical) : (877) 800-5553

CHEMTREC (US Transportation) : (800) 424-9300

2. HAZARDS IDENTIFICATION

GHS CLASSIFICATIONS

Health:

Reproductive Toxicity, Category 1B

GHS LABEL

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)



Health
hazard

SIGNAL WORD: DANGER

HAZARD STATEMENTS

H360: May damage fertility or the unborn child.

PRECAUTIONARY STATEMENTS

Prevention:

P202: Do not handle until all safety precautions have been read and understood.

P201: Obtain special instructions before use.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

Response:

P308+P313: IF exposed or concerned: Get medical advice/ attention.

Storage:

P405: Store locked up.

Disposal:

P501: Dispose of contents/container to a licensed contractor in accordance with local, state and federal regulations.

COMMENTS: Endocrine disrupting chemical(s).

3. COMPOSITION / INFORMATION ON INGREDIENTS

| Chemical Name | Wt.% | CAS |
|------------------------|------|----------|
| Di-sec Octyl Phthalate | 100 | 117-81-7 |

4. FIRST AID MEASURES

EYES: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

SKIN: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. In case of persistent skin irritation, consult a physician.

INGESTION: Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

INHALATION: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water spray, alcohol-resistant foam, dry chemical or CO₂.

FIRE FIGHTING PROCEDURES: As in any fire, wear self-contained breathing apparatus pressure-demand, (MSHA/NIOSH approved or equivalent) and full protective gear.

6. ACCIDENTAL RELEASE MEASURES

ENVIRONMENTAL PRECAUTIONS

WATER SPILL: Avoid discharge into drains, water courses, or onto the ground.

GENERAL PROCEDURES: Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

HANDLING: Avoid contact with skin and eyes. Avoid inhalation of vapor or mist.

STORAGE: Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully released and kept upright to prevent leakage. Storage class (TRGS 510): 3. Flammable liquids.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

PERSONAL PROTECTIVE EQUIPMENT

EYES AND FACE: Safety glasses with side-shields conforming to EN 166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(UN).

SKIN: Handle with Nitrile rubber gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

RESPIRATORY: Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

PROTECTIVE CLOTHING: Impervious clothing. Selection of specific items such as face shield, gloves, boots, apron or full-body suit will depend on operation.

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL STATE: Liquid

FLASH POINT AND METHOD: 207°C (405°F)

FLAMMABLE LIMITS: 0.3% (V)

AUTOIGNITION TEMPERATURE: 390°C (734°F)

VAPOR PRESSURE: 1.6 hPa at 93°C (199.4°F)

BOILING POINT: 384°C (723°F)

MELTING POINT: -50°C (-58°F)

SOLUBILITY IN WATER: Insoluble in water.

DENSITY: 0.985 g/ml at 25°C (77°F)

10. STABILITY AND REACTIVITY

STABILITY: Stable under recommended storage and handling conditions (See Section 7).

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon oxides

INCOMPATIBLE MATERIALS: Strong oxidizers.

11. TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

DERMAL LD₅₀: 25000 mg/kg - Rabbit

ORAL LD₅₀: 30000 mg/kg - rat

SKIN CORROSION/IRRITATION:

Skin- Rabbit

Results: mild skin irritation- 24 h

SERIOUS EYE DAMAGE/IRRITATION:

Eye- rabbit

Results: Mild eye irritation- 24 h

RESPIRATORY OR SKIN SENSITISATION:

Maximisation Test- Guinea pig

Result: Does not cause skin sensitisation.

(OECD Test Guideline 406)

CARCINOGENICITY

IARC: 2B-Group 2B: Possibly carcinogenic to human (bis(2-Ethylhexyl) phthalate)

NTP: Reasonably anticipated to be a human carcinogen (bis(2-Ethylhexyl) phthalate)

OSHA: No component of this product at levels greater than 0.1% is identified as a carcinogen.

REPRODUCTIVE TOXICITY: May cause congenital malformation in the fetus. Presumed human reproductive toxicant. May cause reproductive disorders.

GENERAL COMMENTS:

RTECS: T10350000

Effects due to ingestion may include: Gastrointestinal disturbance.

Kidney

12. ECOLOGICAL INFORMATION

BIOACCUMULATION/ACCUMULATION: Oncorhynchus mykiss (rainbow trout)- 100 d 0.014 mg/l

Bioconcentration factor (BCF): 113

remarks: does not bioaccumulate.

AQUATIC TOXICITY (ACUTE)

96-HOUR LC₅₀: > 0.67 mg/l - Pimephales promelas (fathead minnow)

48-HOUR EC₅₀: > 0.16 mg/l, Daphnia magna (Water flea)

CHEMICAL FATE INFORMATION: Results: readily biodegradable

(OECD Test Guideline 301)

13. DISPOSAL CONSIDERATIONS

PRODUCT DISPOSAL: Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburn scrubber.

EMPTY CONTAINER: Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (DEPARTMENT OF TRANSPORTATION)

PROPER SHIPPING NAME: Environmentally hazardous substance, liquid, N.O.S.

TECHNICAL NAME: (bis(2-Ethylhexyl) phthalate)

PRIMARY HAZARD CLASS/DIVISION: 9

UN/NA NUMBER: 3082

PACKING GROUP: III

REPORTABLE QUANTITY (RQ) UNDER CERCLA: 100 lbs

AIR (ICAO/IATA): Not regulated as a dangerous good.

VESSEL (IMO/IMDG): Not regulated as a danerous good.

15. REGULATORY INFORMATION

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

311/312 HAZARD CATEGORIES: Chronic Health Hazard

313 REPORTABLE INGREDIENTS: All components listed or exempt.

EPCRA SECTION 313 SUPPLIER NOTIFICATION

| Chemical Name | Wt.% | CAS |
|------------------------|------|----------|
| Di-sec Octyl Phthalate | 100 | 117-81-7 |

CERCLA (COMPREHENSIVE ENVIRONMENTAL RESPONSE, COMPENSATION, AND LIABILITY ACT)

CERCLA REGULATORY: All components listed or exempt.

| Chemical Name | Wt.% | CERCLA RQ |
|------------------------|------|-----------|
| Di-sec Octyl Phthalate | 100 | 100 |

TSCA (TOXIC SUBSTANCE CONTROL ACT)

| Chemical Name | CAS |
|------------------------|----------|
| Di-sec Octyl Phthalate | 117-81-7 |

TSCA REGULATORY: All components of this product are on the TSCA Inventory or are exempt from TSCA Inventory requirements under 40 CFR 720.30

CALIFORNIA PROPOSITION 65: WARNING! This product contains a chemical known to the state of California to cause birth defects or other reproductive harm and cancer. bis(2-Ethylhexyl) phthalate

CAS 117-81-7

| Chemical Name | Wt.% | Listed |
|------------------------|------|---|
| Di-sec Octyl Phthalate | 100 | <ul style="list-style-type: none"> ● Cancer ● Developmental Toxicity ● Male Reproductive |

16. OTHER INFORMATION

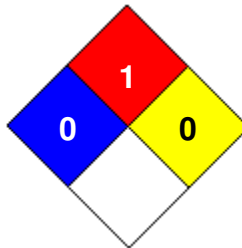
APPROVED BY: Lindsay Myers **TITLE:** HS&E Manager

PREPARED BY: Carolina Cardenas **Date Revised:** 02/05/2019

REVISION SUMMARY: This SDS replaces the 02/05/2019 SDS.

HMIS RATING

| | | |
|----------------------------|---|----------|
| HEALTH | * | 0 |
| FLAMMABILITY | | 1 |
| PHYSICAL HAZARD | | 0 |
| PERSONAL PROTECTION | | |

NFPA CODES

MANUFACTURER DISCLAIMER: The information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the result of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.