

**JM CORBOND® IV Closed-cell Spray Polyurethane Foam (cc SPF) –  
Component B (USA)**

Version 2.0

Revision Date 11/02/2021

Print Date 11/09/2021

**SECTION 1. PRODUCT AND COMPANY IDENTIFICATION**

Trade name : JM CORBOND® IV B Summer HI ALT LAV, JM CORBOND® IV B Summer LO ALT LAV, JM CORBOND® IV B Winter HI ALT LAV, JM CORBOND® IV B Winter LO ALT LAV

## Manufacturer or supplier's details

Company : Johns Manville  
Address : P.O. Box 5108  
Denver, CO USA 80127

Telephone : +1-303-978-2000  
Emergency telephone number : 24-Hour Number: +1-800-424-9300 (CHEMTREC)

Company : Johns Manville Canada Inc.  
Address : 5301 42 Avenue  
Innisfail, AB Canada T4G 1A2  
Telephone : +1-303-978-2000  
Emergency telephone number : 24-Hour Number: +1-800-424-9300 (CHEMTREC)

## Recommended use of the chemical and restrictions on use

Recommended use : thermal and/or acoustic insulation  
Restrictions on use : For professional users only.  
Prepared by : productsafety@jm.com

**SECTION 2. HAZARDS IDENTIFICATION****GHS classification in accordance with 29 CFR 1910.1200 (OSHA HCS 2012) and the Hazardous Products Regulations (WHMIS 2015)**

Acute toxicity (Oral) : Category 4  
Skin irritation : Category 2  
Eye irritation : Category 2A  
Skin sensitisation : Category 1  
Reproductive toxicity : Category 1B  
Specific target organ toxicity - repeated exposure : Category 2 (Kidney, Pancreas)

**GHS label elements**

Hazard pictograms :



Signal word : Danger

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**Hazard statements** : H302 Harmful if swallowed.  
 H315 Causes skin irritation.  
 H317 May cause an allergic skin reaction.  
 H319 Causes serious eye irritation.  
 H360 May damage fertility or the unborn child.  
 H373 May cause damage to organs (Kidney, Pancreas) through prolonged or repeated exposure.

**Precautionary statements** : **Prevention:**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
 P264 Wash skin thoroughly after handling.  
 P270 Do not eat, drink or smoke when using this product.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

**Response:**

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.  
 P302 + P352 IF ON SKIN: Wash with plenty of soap and 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.  
 P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.  
 P337 + P313 If eye irritation persists: Get medical advice/ attention.  
 P362 Take off contaminated clothing and wash before reuse.

**Storage:**

P405 Store locked up.

**Disposal:**

P501 Dispose of contents/container to an approved facility in accordance with local, regional, national and international regulations.

**Other hazards**

None known.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Hazardous components**

Chemical name	CAS-No.	Concentration (%)
2-propanol, 1-chloro-, 2,2',2"-phosphate	13674-84-5	>= 20 - < 30

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(2Z)-1,1,1,4,4,4-hexafluorobut-2-ene	692-49-9	>= 10 - < 30
diethylene glycol	111-46-6	>= 5 - < 10
ethane-1,2-diol	107-21-1	>= 1 - < 5
aromatic diamine (trade secret)		>= 1 - < 5
trans-dichloroethylene	156-60-5	>= 1 - < 5
aliphatic amine (trade secret)		>= 1 - < 5
amine (trade secret)		>= 1 - < 5
poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	>= 1 - < 5
organotin compound (trade secret)		>= 0.1 - < 1

Actual concentration or concentration range is withheld as a trade secret

**SECTION 4. FIRST AID MEASURES**

- General advice : Move out of dangerous area.  
Show this safety data sheet to the doctor in attendance.  
Do not leave the victim unattended.
- If inhaled : Remove to fresh air immediately. Get medical attention immediately.  
If breathing has stopped, apply artificial respiration.  
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.  
Wash contaminated clothing before re-use.  
Call a physician if irritation develops or persists.
- In case of eye contact : In case of eye contact, remove contact lens and rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.  
Keep eye wide open while rinsing.  
Protect unharmed eye.  
If eye irritation persists, consult a specialist.
- If swallowed : Do NOT induce vomiting.  
Rinse mouth with water.  
Never give anything by mouth to an unconscious person.  
Obtain medical attention.
- Most important symptoms and effects, both acute and delayed : Harmful if swallowed.  
Causes skin irritation.  
May cause an allergic skin reaction.  
Causes serious eye irritation.  
May damage fertility or the unborn child.  
May cause damage to organs through prolonged or repeated exposure.
- Protection of first-aiders : If potential for exposure exists refer to Section 8 for specific personal protective equipment.

**SECTION 5. FIREFIGHTING MEASURES**

- Suitable extinguishing media : Water spray  
Dry chemical  
Carbon dioxide (CO2)  
Foam
- Unsuitable extinguishing : High volume water jet

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media	
Hazardous combustion products	: carbon oxides nitrogen oxides chlorine compounds fluorine compounds phosphorus oxides phenol olefins
Specific extinguishing methods	: Standard procedure for chemical fires.
Further information	: Use a water spray to cool fully closed containers.
Special protective equipment for firefighters	: Wear self-contained breathing apparatus for firefighting if necessary.

**SECTION 6. ACCIDENTAL RELEASE MEASURES**

Personal precautions, protective equipment and emergency procedures	: Immediately evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Use personal protective equipment.
Environmental precautions	: Prevent further leakage or spillage if safe to do so. The product should not be allowed to enter drains, water courses or the soil.
Methods and materials for containment and cleaning up	: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

**SECTION 7. HANDLING AND STORAGE**

Advice on protection against fire and explosion	: Fire or intense heat may cause violent rupture of packages.
Advice on safe handling	: Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. Smoking, eating and drinking should be prohibited in the application area. For personal protection see section 8.
Conditions for safe storage	: Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination is suspected.
Materials to avoid	: polymerisation initiators
Recommended storage temperature	: 10 - 27 °C
Storage period	: 6 Months
Further information on storage stability	: Keep containers dry and tightly closed to avoid moisture absorption and contamination.

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

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### Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
(2Z)-1,1,1,4,4,4-hexafluorobut-2-ene	692-49-9	TWA	500 ppm 3,350 mg/m <sup>3</sup>	US WEEL
diethylene glycol	111-46-6	TWA	10 mg/m <sup>3</sup>	US WEEL
ethane-1,2-diol	107-21-1	C (Aerosol only)	100 mg/m <sup>3</sup>	ACGIH
		TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m <sup>3</sup>	ACGIH
trans-dichloroethylene	156-60-5	TWA	200 ppm	ACGIH
organotin compound (trade secret)	Not Assigned	TWA	0.1 mg/m <sup>3</sup> (Tin)	OSHA
		TWA	0.1 mg/m <sup>3</sup> (Tin)	ACGIH
		STEL	0.2 mg/m <sup>3</sup> (Tin)	ACGIH
		TWA	0.1 mg/m <sup>3</sup> (Tin)	OSHA
		TWA	0.1 mg/m <sup>3</sup> (Tin)	NIOSH REL

### Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection  
Material : Impervious gloves

Remarks : Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time.

Eye protection : Wear safety glasses with side shields or goggles. Wear a faceshield or other full face protection if there is a potential for direct contact to the face with dusts, mists, or

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Skin and body protection	: aerosols. Remove respiratory and skin/eye protection only after vapours have been cleared from the area. Wear protective clothing, such as long-sleeved shirts and pants. Full protective suit Choose body protection according to the amount and concentration of the dangerous substance at the work place. Remove and wash contaminated clothing before re-use.
Hygiene measures	: Handle in accordance with good industrial hygiene and safety practice. When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday. Written instructions for handling must be available at the work place.

### SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: viscous liquid
Colour	: lavender
Odour	: amine-like
Odour Threshold	: No data available
pH	: No data available
Melting point/freezing point	: No data available
Initial boiling point and boiling range	: No data available
Flash point	: > 93 °C
Evaporation rate	: No data available
Flammability (solid, gas)	: Not applicable
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: No data available
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Thermal decomposition	: No data available
Viscosity	
Viscosity, dynamic	: 650 mPa.s (24 °C)
Viscosity, kinematic	: No data available

### SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous	: Contact with isocyanates will cause polymerization.

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reactions	Stable under recommended storage conditions.
Conditions to avoid	: Protect from frost, heat and sunlight. Exposure to moisture
Incompatible materials	: Strong oxidizing agents isocyanates
Hazardous decomposition products	: In case of fire hazardous decomposition products may be produced such as: carbon oxides nitrogen oxides chlorine compounds fluorine compounds Phosphorus compounds

### SECTION 11. TOXICOLOGICAL INFORMATION

#### Acute toxicity

##### Product:

Acute oral toxicity	: Acute toxicity estimate : 1,843 mg/kg Method: Calculation method
Acute inhalation toxicity	: Acute toxicity estimate : > 40 mg/l Exposure time: 4 h Test atmosphere: vapour Method: Calculation method
Acute dermal toxicity	: Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method

##### Components:

##### **2-propanol, 1-chloro-, 2,2',2"-phosphate:**

Acute oral toxicity	: LD50 (Rat, female): ca. 707 mg/kg Method: OECD Test Guideline 401
Acute inhalation toxicity	: LC50 (Rat, male and female): > 7 mg/l Exposure time: 4 h Test atmosphere: dust/mist Assessment: The substance or mixture has no acute inhalation toxicity Remarks: No mortality was observed.
Acute dermal toxicity	: LD50 (Rabbit, male and female): > 2,000 mg/kg Method: OECD Test Guideline 402

##### **(2Z)-1,1,1,4,4,4-hexafluorobut-2-ene:**

Acute inhalation toxicity	: LC50 (Rat, male and female): 690.413 mg/l Exposure time: 4 h Test atmosphere: vapour Method: OECD Test Guideline 403
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##### **diethylene glycol:**

Acute oral toxicity	: LD50 (Humans): 1,000 mg/kg
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**ethane-1,2-diol:**

Acute oral toxicity : LD50 (Rat): 7,712 mg/kg  
 Method: Expert judgement  
 Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (Rat, male and female): > 2.5 mg/l  
 Exposure time: 6 h  
 Test atmosphere: vapour  
 GLP: yes  
 Assessment: The substance or mixture has no acute inhalation toxicity  
 Remarks: An LC50/inhalation/4h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration.

Acute dermal toxicity : LD50 (Mouse, male and female): > 3,500 mg/kg

**aromatic diamine (trade secret):**

Acute oral toxicity : LD50 (Rat, male): 723 mg/kg  
 Method: OECD Test Guideline 401  
 GLP: yes

Acute inhalation toxicity : LC50 (Rat, male and female): > 2.45 mg/l  
 Exposure time: 1 h  
 Test atmosphere: dust/mist  
 GLP: no  
 Assessment: The substance or mixture has no acute inhalation toxicity  
 Remarks: No mortality was observed.

Acute dermal toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
 Method: OECD Test Guideline 402  
 GLP: yes  
 Remarks: No mortality was observed.

**trans-dichloroethylene:**

Acute oral toxicity : LD50 (Rat, male): 7,902 mg/kg  
 Method: Fixed Dose Method

Acute inhalation toxicity : LC50 (Rat): 24100 ppm  
 Exposure time: 4 h  
 Test atmosphere: vapour  
 Method: OECD Test Guideline 403

Acute dermal toxicity : LD50 (Rabbit, male and female): > 5,000 mg/kg  
 Method: OECD Test Guideline 402

**aliphatic amine (trade secret):**

Acute oral toxicity : LD50 (Rat, female): 1,389.36 mg/kg  
 Method: OECD Test Guideline 401

Acute dermal toxicity : LD50 (Rat, male): 992.4 mg/kg  
 Method: OECD Test Guideline 402

**amine (trade secret):**



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Acute oral toxicity : LD50 (Rat, male): ca. 2,382.88 mg/kg

Acute inhalation toxicity : LC50 (Rat, female): 1.8 mg/l  
Exposure time: 4 h  
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit, female): 1,171 mg/kg

**poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:**

Acute oral toxicity : LD50 (Rabbit, male and female): 657.2 mg/kg

Acute inhalation toxicity : Assessment: The substance or mixture has no acute  
inhalation toxicity**organotin compound (trade secret):**Acute oral toxicity : LD50 (Rat, male and female): > 2,000 mg/kg  
Method: OECD Test Guideline 423Acute dermal toxicity : LD50 (Rabbit, female): > 1,000 - < 2,000 mg/kg  
Method: OECD Test Guideline 402**Skin corrosion/irritation****Components:****aliphatic amine (trade secret):**Species: Rabbit  
Method: OECD Test Guideline 404  
Result: Corrosive after 3 minutes to 1 hour of exposure**Skin corrosion/irritation****amine (trade secret):**Species: Rabbit  
Result: Causes burns.**Skin corrosion/irritation****organotin compound (trade secret):**

Result: irritating

**Serious eye damage/eye irritation****Components:****aromatic diamine (trade secret):**Species: Rabbit  
Result: Irritation to eyes, reversing within 21 days  
Method: Draize Test  
GLP: no**Serious eye damage/eye irritation****trans-dichloroethylene:**Species: Rabbit  
Result: irritating  
Method: OECD Test Guideline 405

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**Serious eye damage/eye irritation****aliphatic amine (trade secret):**

Species: Rabbit

Result: Risk of serious damage to eyes.

Method: OECD Test Guideline 405

**Serious eye damage/eye irritation****amine (trade secret):**

Species: Rabbit

Result: Irreversible effects on the eye

**Serious eye damage/eye irritation****poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:**

Species: Rabbit

Result: irritating

**Respiratory or skin sensitisation****Components:****aromatic diamine (trade secret):****Respiratory or skin sensitisation****organotin compound (trade secret):**

Test Type: Maximisation Test

Exposure routes: Skin contact

Species: Guinea pig

Assessment: May cause sensitisation by skin contact.

Method: OECD Test Guideline 406

Remarks: Based on data from similar materials

**Germ cell mutagenicity****Components:****organotin compound (trade secret):**

Germ cell mutagenicity- : In vitro tests showed mutagenic effects

Assessment

**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 (29 CFR 1910 Subpart Z, Toxic and Hazardous Substances).

**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.

**Reproductive toxicity****Components:****organotin compound (trade secret):**

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Reproductive toxicity - Assessment : Clear evidence of adverse effects on sexual function and fertility, and/or on development, based on animal experiments

**STOT - single exposure****Components:****trans-dichloroethylene:**

Exposure routes: inhalation (vapour)

Target Organs: Central nervous system

Assessment: May cause drowsiness or dizziness.

**STOT - repeated exposure****Components:****ethane-1,2-diol:**

Exposure routes: Ingestion

Target Organs: Kidney

Assessment: Shown to produce significant health effects in animals at concentrations of &gt;10 to 100 mg/kg bw.

**STOT - repeated exposure****aromatic diamine (trade secret):**

Target Organs: Pancreas

Assessment: Shown to produce significant health effects in animals at concentrations of &gt;10 to 100 mg/kg bw.

**STOT - repeated exposure****organotin compound (trade secret):**

Target Organs: thymus

Assessment: Causes damage to organs through prolonged or repeated exposure.

**Repeated dose toxicity****Components:****diethylene glycol:**

Species: Rat

1600 mg/kg

Application Route: Oral

Target Organs: Kidney

**aromatic diamine (trade secret):**

Species: Rat, male

NOAEL: 21 mg/kg

Application Route: Ingestion

Method: OECD Test Guideline 408

GLP: yes

Target Organs: Pancreas

**SECTION 12. ECOLOGICAL INFORMATION**

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**Ecotoxicity****Product:****Ecotoxicology Assessment**

- Acute aquatic toxicity : Toxic to aquatic life.
- Chronic aquatic toxicity : Toxic to aquatic life with long lasting effects.

**Components:****diethylene glycol:**

- Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l  
End point: mortality  
Exposure time: 96 h  
Test Type: flow-through test
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): > 10,000 mg/l  
Exposure time: 24 h  
Test Type: static test  
Method: DIN 38412

**aromatic diamine (trade secret):**

- Toxicity to fish : LC50 (Leuciscus idus (Golden orfe)): 200.0 mg/l  
Exposure time: 48 h  
Method: DIN 38412
- Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): 0.5 mg/l  
Exposure time: 48 h  
Method: Regulation (EC) No. 440/2008, Annex, C.2
- Toxicity to algae : ErC50 (algae): 104 mg/l  
Exposure time: 72 h  
Test Type: Growth inhibition

**Ecotoxicology Assessment**

- Acute aquatic toxicity : Very toxic to aquatic life.
- Chronic aquatic toxicity : Very toxic to aquatic life with long lasting effects.

**trans-dichloroethylene:**

- Toxicity to fish : LC50 (Lepomis macrochirus (Bluegill sunfish)): 135 mg/l  
Exposure time: 96 h
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 220 mg/l  
Exposure time: 48 h  
Test Type: static test
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): 36.36 mg/l  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 201

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**aliphatic amine (trade secret):**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): ca. 92.5 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 31.0 mg/l  
 End point: Immobilization  
 Exposure time: 48 h  
 Test Type: static test  
 Method: OECD Test Guideline 202
- Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): 34.99 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Method: OECD Test Guideline 201
- NOEC (Pseudokirchneriella subcapitata (algae)): 25 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Method: OECD Test Guideline 201
- Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 2.2 mg/l  
 Exposure time: 21 d  
 Test Type: semi-static test  
 Method: OECD Test Guideline 211

**amine (trade secret):**

- Toxicity to fish : LC50 (Danio rerio (zebra fish)): ca. 92.5 mg/l  
 End point: mortality  
 Exposure time: 96 h  
 Test Type: static test  
 Method: OECD Test Guideline 203  
 Remarks: Based on data from similar materials
- Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 48 mg/l  
 End point: Immobilization  
 Exposure time: 48 h  
 Test Type: semi-static test  
 Method: Regulation (EC) No. 440/2008, Annex, C.2
- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 74.9 mg/l  
 Exposure time: 72 h  
 Test Type: static test  
 Method: Regulation (EC) No. 440/2008, Annex, C.3

**poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:**

- Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 19.48 mg/l  
 Test Type: static test  
 Remarks: The value is given based on a SAR/AAR approach using OECD Toolbox, DEREK, VEGA QSAR models (CAESAR models), etc.

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**Ecotoxicology Assessment**

Chronic aquatic toxicity : Harmful to aquatic life with long lasting effects.

**organotin compound (trade secret):**Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 0.023 mg/l  
End point: Immobilization  
Exposure time: 48 h  
Test Type: static test  
Method: OECD Test Guideline 202Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): >= 1.6 mg/l  
Exposure time: 72 h  
Method: OECD Test Guideline 201  
Remarks: Based on data from similar materials**Persistence and degradability****Components:****diethylene glycol:**Biodegradability : aerobic  
Result: Readily biodegradable.  
Biodegradation: 90 - 100 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301B**ethane-1,2-diol:**Biodegradability : Result: Readily biodegradable.  
Biodegradation: 100 %**aromatic diamine (trade secret):**

Biodegradability : Result: Not readily biodegradable.

**trans-dichloroethylene:**Biodegradability : aerobic  
Inoculum: activated sludge  
Biodegradation: 93 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301D**aliphatic amine (trade secret):**Biodegradability : aerobic  
Inoculum: activated sludge, non-adapted  
Result: Not readily biodegradable.  
Biodegradation: > 0 - < 10 %  
Exposure time: 42 d  
Method: OECD Test Guideline 301A**amine (trade secret):**Biodegradability : Inoculum: activated sludge  
Concentration: 100 mg/l

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Result: Not readily biodegradable.  
Biodegradation: 0.9 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301C

**poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:**

Biodegradability : Result: Readily biodegradable.

**organotin compound (trade secret):**

Biodegradability : aerobic  
Inoculum: activated sludge  
Concentration: 34.3 mg/l  
Result: Not readily biodegradable.  
Biodegradation: 0 %  
Exposure time: 28 d  
Method: OECD Test Guideline 301F  
Remarks: Information taken from reference works and the literature.

**Bioaccumulative potential****Components:****2-propanol, 1-chloro-, 2,2',2"-phosphate:**

Partition coefficient: n-  
octanol/water : log Pow: 2.68

**(2Z)-1,1,1,4,4-hexafluorobut-2-ene:**

Partition coefficient: n-  
octanol/water : log Pow: 2.3 (30 °C)  
pH: 6.1  
Method: OECD Test Guideline 117

**diethylene glycol:**

Bioaccumulation : Species: Leuciscus idus (Golden orfe)  
Bioconcentration factor (BCF): 100  
Exposure time: 3 d  
Concentration: 0.05 mg/l

Partition coefficient: n-  
octanol/water : log Pow: -1.98

**ethane-1,2-diol:**

Partition coefficient: n-  
octanol/water : log Pow: -1.36 (25 °C)

**aromatic diamine (trade secret):**

Partition coefficient: n-  
octanol/water : log Pow: 1.38 (25 °C)

**trans-dichloroethylene:**

Partition coefficient: n-  
octanol/water : log Pow: 2.06

**amine (trade secret):**

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Partition coefficient: n-  
octanol/water : log Pow: 0 - 0.05 (25 °C)  
pH: 12.2

**poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:**

Partition coefficient: n-  
octanol/water : log Pow: 5.669 (25 °C)  
pH: 7.5  
Method: OECD Test Guideline 117

**organotin compound (trade secret):**

Partition coefficient: n-  
octanol/water : log Pow: 3.11 (22 °C)  
pH: 6.1 - 6.7  
Method: OECD Test Guideline 107

**Mobility in soil**

No data available

**Other adverse effects****Product:**

Ozone-Depletion Potential : 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).

**Global warming potential****Global Warming Potentials - 40CFR Part 98 -Table A-1 to SubPart A.****Components:****(2Z)-1,1,1,4,4,4-hexafluorobut-2-ene:**

100-year global warming potential: 1.58  
Further information: Unsaturated Hydrofluorocarbons (HFCs) and Hydrochlorofluorocarbons  
(HCFCs), This compound was added to Table A-1 in the final rule published on December 11,  
2014, and effective on January 1, 2015.

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**SECTION 13. DISPOSAL CONSIDERATIONS****Disposal methods**

Waste from residues : Dispose of contents/container to an approved facility in  
accordance with local, regional, national and international  
regulations.  
Contaminated packaging : Empty remaining contents.  
Dispose of as unused product.  
Do not re-use empty containers.

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**SECTION 14. TRANSPORT INFORMATION**



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### International transport regulations

#### Land transport

USDOT: Not classified as a dangerous good under transport regulations

TDG: Not classified as a dangerous good under transport regulations

#### Sea transport

IMDG: Not classified as a dangerous good under transport regulations

#### Air transport

IATA/ICAO: Not classified as a dangerous good under transport regulations

## SECTION 15. REGULATORY INFORMATION

### TSCA list

TSCA - 5(a) Significant New Use Rule List of Chemicals : The following substance(s) is/are subject to a Significant New Use Rule: (2Z)-1,1,1,4,4,4-hexafluorobut-2-ene

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D) : The following substance(s) is/are subject to TSCA 12(b) export notification requirements: (2Z)-1,1,1,4,4,4-hexafluorobut-2-ene

### EPCRA - Emergency Planning and Community Right-to-Know Act

#### CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
trans-1,2-dichloroethylene	156-60-5	1000	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

#### CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

#### SARA 304 Extremely Hazardous Substances Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
ethylene oxide	75-21-8	10	*

\*: Calculated RQ exceeds reasonably attainable upper limit.

**SARA 311/312 Hazards** : Flammable (gases, aerosols, liquids, or solids)  
 Acute toxicity (any route of exposure)  
 Skin corrosion or irritation  
 Serious eye damage or eye irritation  
 Respiratory or skin sensitisation  
 Reproductive toxicity  
 Specific target organ toxicity (single or repeated exposure)

**SARA 302** : This material does not contain any components with a section 302 EHS TPQ.

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**SARA 313** : The following components are subject to reporting levels established by SARA Title III, Section 313:

ethane-1,2-diol	107-21-1	1 - 5 %
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### Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

diethylene glycol	111-46-6	5 - 10 %
ethane-1,2-diol	107-21-1	1 - 5 %

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 Intermediate or Final VOC's (40 CFR 60.489):

diethylene glycol	111-46-6	5 - 10 %
ethane-1,2-diol	107-21-1	1 - 5 %

### California Prop. 65

**⚠️ WARNING:** This product can expose you to chemicals including ethylene oxide, which is/are known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

### The components of this product are reported in the following inventories:

TSCA : On the inventory, or in compliance with the inventory

DSL : On the inventory, or in compliance with the inventory

## SECTION 16. OTHER INFORMATION

### Further information

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The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.