

JM CORBOND® IV 2.8 HFO Closed-cell Spray Polyurethane Foam (cc SPF) – Component B (USA)

Version 1.0

Revision Date 02/04/2021

Print Date 02/04/2021

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name : JM CORBOND® IV B 2.8 HFO 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 : 24-Hour Number: +1-800-424-9300 (CHEMTREC)
 number

Recommended use of the chemical and restrictions on use

 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)

Reproductive toxicity : Category 2

 Specific target organ toxicity : Category 2 (Kidney)
 - repeated exposure (Oral)

GHS label elements

Hazard pictograms :



Signal word : Warning

 Hazard statements : H361 Suspected of damaging fertility or the unborn child.
 H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

 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.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response:
 P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

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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	>= 5 - < 10
diethylene glycol	111-46-6	>= 5 - < 10
trans-1-chloro-3,3,3-trifluoroprop-1-ene	102687-65-0	>= 5 - < 10
ethane-1,2-diol	107-21-1	>= 5 - < 10
catalyst (trade secret)		>= 1 - < 5
triethyl phosphate	78-40-0	>= 1 - < 5
poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched	127087-87-0	>= 1 - < 5
reactive amine catalyst (trade secret)	Not Assigned	>= 0.1 - < 1
zinc compound (trade secret)	Not Assigned	>= 0.1 - < 1
tertiary amine (trade secret)	Not Assigned	>= 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 is irregular or stopped, administer artificial respiration.
If unconscious, place in recovery position and seek medical advice.
- In case of skin contact : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.
Get medical attention immediately.
Wash contaminated clothing before reuse.
- In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 5 minutes.
If easy to do, remove contact lens, if worn.
Keep eye wide open while rinsing.
Protect unharmed eye.
If eye irritation persists, consult a specialist.
- If swallowed : DO NOT induce vomiting unless directed to do so by a physician or poison control center.

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Most important symptoms and effects, both acute and delayed : Gently wipe or rinse the inside of the mouth with water.
Never give anything by mouth to an unconscious person.
Get medical attention immediately.
Suspected of damaging fertility or the unborn child.
May cause damage to organs through prolonged or repeated exposure if swallowed.

SECTION 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Water spray
Dry chemical
Carbon dioxide (CO₂)
Foam

Unsuitable extinguishing media : High volume water jet

Hazardous combustion products : carbon oxides
nitrogen oxides
chlorine compounds
fluorine compounds
phosphorus oxides
olefins
phenol

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.

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Conditions for safe storage	:	For personal protection see section 8. 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

Components with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
diethylene glycol	111-46-6	TWA	10 mg/m ³	US WEEL
trans-1-chloro-3,3,3-trifluoroprop-1-ene	102687-65-0	TWA	800 ppm	US WEEL
ethane-1,2-diol	107-21-1	C (Aerosol only)	100 mg/m ³	ACGIH
		TWA (Vapour)	25 ppm	ACGIH
		STEL (Vapour)	50 ppm	ACGIH
		STEL (Inhalable fraction, Aerosol only)	10 mg/m ³	ACGIH
triethyl phosphate	78-40-0	TWA	7.45 mg/m ³	US WEEL

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 : Protective 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

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Eye protection	:	danger of cuts, abrasion, and the contact time. 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 aerosols. Remove respiratory and skin/eye protection only after vapours have been cleared from the area.
Skin and body protection	:	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)	:	No data available
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

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Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	Contact with isocyanates will cause polymerization. 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 chlorine compounds fluorine compounds nitrogen oxides Phosphorus compounds

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Product:

Acute oral toxicity	:	Acute toxicity estimate : 2,869 mg/kg Method: Calculation method
Acute inhalation toxicity	:	Acute toxicity estimate : > 200 mg/l Exposure time: 4 h Test atmosphere: dust/mist Method: Calculation method
Acute dermal toxicity	:	Acute toxicity estimate : > 5,000 mg/kg Method: Calculation method

Acute toxicity

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

Acute toxicity

diethylene glycol:

Acute oral toxicity	:	LD50 (Humans): 1,000 mg/kg
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Acute toxicity**trans-1-chloro-3,3,3-trifluoroprop-1-ene:**

Acute inhalation toxicity : LC50 (Rat, male and female): 120000 ppm
Exposure time: 4 h
Test atmosphere: gas
Method: OECD Test Guideline 403

Acute toxicity**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

Acute toxicity**triethyl phosphate:**

Acute inhalation toxicity : LC50 (Rat, male and female): > 8.817 mg/l
Exposure time: 4 h
Test atmosphere: dust/mist
Method: OECD Test Guideline 403
GLP: yes
Remarks: No mortality was observed.

Acute dermal toxicity : LD50 (Rabbit): > 20,000 mg/kg
GLP: no

Acute toxicity**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

Acute toxicity**zinc compound (trade secret):**

Acute oral toxicity : LD50 (Rat): > 2,000 mg/kg

Acute inhalation toxicity : LC50 (Rat): > 5.7 mg/l
Exposure time: 4 h

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Test atmosphere: dust/mist

Acute dermal toxicity : LD50 (Rat): > 2,000 mg/kg

Acute toxicity**tertiary amine (trade secret):**

Acute oral toxicity : LD50 (Rat): 1,144 mg/kg

Acute dermal toxicity : LD50 (Rabbit): 400 - 640 mg/kg

Skin corrosion/irritation**Components:****reactive amine catalyst (trade secret):**

Method: in vitro skin corrosion test

Result: Irritating to skin.

Skin corrosion/irritation**tertiary amine (trade secret):**

Result: Corrosive

Serious eye damage/eye irritation**Components:****catalyst (trade secret):**

Result: irritating

Serious eye damage/eye irritation**triethyl phosphate:**

Species: Rabbit

Result: Eye irritation

Method: OECD Test Guideline 405

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

Species: Rabbit

Result: irritating

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

Result: Risk of serious damage to eyes.

Serious eye damage/eye irritation**zinc compound (trade secret):**

Result: Irritating to eyes.

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

Result: Risk of serious damage to eyes.

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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:****reactive amine catalyst (trade secret):**Reproductive toxicity - : Suspected human reproductive toxicant
Assessment**Reproductive toxicity****zinc compound (trade secret):**Reproductive toxicity - : Suspected human reproductive toxicant
Assessment**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 >10 to 100 mg/kg bw.

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

Species: Rat

1600 mg/kg

Application Route: Oral

Target Organs: Kidney

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:****diethylene glycol:**Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 75,200 mg/l
End point: mortality

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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

trans-1-chloro-3,3,3-trifluoroprop-1-ene:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): ca. 38 mg/l
 End point: mortality
 Exposure time: 96 h
 Test Type: static test
 Method: OECD Test Guideline 203

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (algae)): > 215 mg/l
 Test Type: static test
 Method: OECD Test Guideline 201

triethyl phosphate:

Toxicity to algae : EC50 (Desmodesmus subspicatus (green algae)): 901 mg/l

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : NOEC (Daphnia magna (Water flea)): 31.6 mg/l
 Exposure time: 21 d
 Method: OECD Test Guideline 211

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.

Ecotoxicology Assessment

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

zinc compound (trade secret):

Toxicity to fish : LC50 (Cyprinus carpio (Carp)): 30 - 70 mg/l
 Exposure time: 96 h

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 5 mg/l
 Exposure time: 48 h

Toxicity to algae : EC50 (Pseudokirchneriella subcapitata (green algae)): 2.72 mg/l
 Exposure time: 72 h

Toxicity to microorganisms : EC50 (activated sludge): > 1,000 mg/l
 Exposure time: 3 h

tertiary amine (trade secret):

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Toxicity to fish	:	LC50 (Fish): 100 - 215 mg/l Exposure time: 96 h
Toxicity to daphnia and other aquatic invertebrates	:	EC50 (Daphnia magna (Water flea)): 267.94 mg/l Exposure time: 48 h
Toxicity to algae	:	EC50 (algae): 202.5 mg/l Exposure time: 72 h
Toxicity to microorganisms	:	EC50 (Pseudomonas putida): 1,050 mg/l Exposure time: 7 h

Persistence and degradability**Components:****diethylene glycol:**

Biodegradability	:	aerobic Result: Readily biodegradable. Biodegradation: 90 - 100 % Exposure time: 28 d Method: OECD Test Guideline 301B
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trans-1-chloro-3,3,3-trifluoroprop-1-ene:

Biodegradability	:	aerobic Biodegradation: 0 % Exposure time: 28 d Method: OECD Test Guideline 301D
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ethane-1,2-diol:

Biodegradability	:	Result: Readily biodegradable. Biodegradation: 100 %
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poly(oxy-1,2-ethanediyl), .alpha.-(4-nonylphenyl)-.omega.-hydroxy-, branched:

Biodegradability	:	Result: Readily biodegradable.
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Bioaccumulative potential**Components:****2-propanol, 1-chloro-, 2,2',2"-phosphate:**

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

Bioaccumulation	:	Species: Leuciscus idus (Golden orfe) Bioconcentration factor (BCF): 100 Exposure time: 3 d Concentration: 0.05 mg/l
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Partition coefficient: n-octanol/water	:	log Pow: -1.98
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trans-1-chloro-3,3,3-trifluoroprop-1-ene:

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Partition coefficient: n-octanol/water : log Pow: ca. 2.2 (25 °C)
pH: 7.4
Method: OECD Test Guideline 117

ethane-1,2-diol:

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

triethyl phosphate:

Partition coefficient: n-octanol/water : log Pow: 1.11
Method: Regulation (EC) No. 440/2008, Annex, A.8

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

zinc compound (trade secret):

Partition coefficient: n-octanol/water : log Pow: > 5.7

tertiary amine (trade secret):

Partition coefficient: n-octanol/water : log Pow: -0.19

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:****trans-1-chloro-3,3,3-trifluoroprop-1-ene:**

100-year global warming potential: 1.34
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.

SECTION 13. DISPOSAL CONSIDERATIONS

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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.

SECTION 14. TRANSPORT INFORMATION

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 : No substances are subject to a Significant New Use Rule.

U.S. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpart D) : No substances are subject to TSCA 12(b) export notification requirements.

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 : 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.

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

ethane-1,2-diol	107-21-1	5 - 10 %
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Clean Air Act

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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	5 - 10 %

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):

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

California Prop. 65

This product does not require a warning under the California Safe Drinking Water and Toxic Enforcement Act (Proposition 65).

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

TSCA : All substances listed as active on the TSCA 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.