

JEFFCAT® ZR-50

Version	Revision Date:	SDS Number:	Date of last issue: 12/13/2017
2.0	02/24/2020	400001000612	Date of first issue: 10/02/2015

Print Date 03/27/2020

SECTION 1. IDENTIFICATION

Product name : JEFFCAT® ZR-50

Manufacturer or supplier's details

Company name of supplier : Huntsman International LLC
Address : P.O. Box 4980
The Woodlands,
TX 77387
United States of America (USA)
Telephone : TechInfo: (281) 719-7780

E-mail address of person responsible for the SDS : Global_Product_EHS_HPP@huntsman.com

Emergency telephone number : Chemtrec: (800) 424-9300 or (703) 527-3887

Recommended use of the chemical and restrictions on use

Recommended use : Component of a Polyurethane System.

SECTION 2. HAZARDS IDENTIFICATION**GHS classification in accordance with 29 CFR 1910.1200**

Acute toxicity (Oral) : Category 4

Skin corrosion : Category 1

Serious eye damage : Category 1

Short-term (acute) aquatic hazard : Category 3

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H402 Harmful to aquatic life.

Precautionary statements : **Prevention:**
P264 Wash skin 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/

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face protection.

Response:

P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell. Rinse mouth.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P304 + P340 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.

P305 + P351 + P338 + P310 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/doctor.

P363 Wash contaminated clothing 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

Substance / Mixture : Substance

Chemical nature : Amines

Hazardous components

Chemical name	CAS-No.	Concentration (% w/w)
1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol	67151-63-7	90 - 100

The specific chemical identity and/or exact percentage (concentration) of composition may be withheld as a trade secret.

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Treat symptomatically.
Get medical attention if symptoms occur.

If inhaled : If inhaled, remove to fresh air.
Get medical attention if symptoms occur.

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- In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Clean mouth with water and drink afterwards plenty of water.
Keep respiratory tract clear.
Do NOT induce vomiting.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.
- Most important symptoms and effects, both acute and delayed : None known.
- Notes to physician : Treat symptomatically.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : Carbon oxides
Nitrogen oxides (NOx)
- Specific extinguishing methods : No data is available on the product itself.
- Further information : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
- Special protective equipment for firefighters : In the event of fire, wear self-contained breathing apparatus.

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SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment.
Refer to protective measures listed in sections 7 and 8. |
| Environmental precautions | : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : Neutralise with acid.
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 | : Normal measures for preventive fire protection. |
| Advice on safe handling | : Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the application area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations. |
| Conditions for safe storage | : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Keep in properly labelled containers. |
| Materials to avoid | : For incompatible materials please refer to Section 10 of this SDS. |
| Further information on storage stability | : Stable under normal conditions. |

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Contains no substances with occupational exposure limit values.

Personal protective equipment

- | | |
|------------------------|---|
| Respiratory protection | : No personal respiratory protective equipment normally required. |
|------------------------|---|

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Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
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 : liquid

Colour : colourless

Odour : ammoniacal

Odour Threshold : No data is available on the product itself.

pH : 11.9

Freezing point : < -4 °F / < -20 °C
Method: Melting / Freezing Temperature

Boiling point : 495 °F / 257 °C
(1,013 hPa)
Method: Boiling Temperature

Flash point : 270 °F / 132 °C
Method: closed cup

Evaporation rate : No data is available on the product itself.

Flammability (solid, gas) : No data is available on the product itself.

Flammability (liquids) : No data is available on the product itself.

Upper explosion limit / Upper flammability limit : No data is available on the product itself.

Lower explosion limit / Lower flammability limit : No data is available on the product itself.

Vapour pressure : 0.017 hPa (68 °F / 20 °C)
Method: Vapour Pressure

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Relative vapour density	:	No data is available on the product itself.
Relative density	:	0.91 (68 °F / 20 °C) Method: Relative Density
Density	:	No data is available on the product itself.
Solubility(ies)	:	
Water solubility	:	100 g/l completely miscible (68 °F / 20 °C) Method: Water solubility
Solubility in other solvents	:	No data is available on the product itself.
Partition coefficient: n-octanol/water	:	No data is available on the product itself.
Auto-ignition temperature	:	441 °F / 227 °C Method: Auto-Ignition Temperature (Liquids and Gases)
Thermal decomposition	:	No data is available on the product itself.
Self-Accelerating decomposition temperature (SADT)	:	No data is available on the product itself.
Viscosity	:	
Viscosity, kinematic	:	16.83 mm ² /s (68 °F / 20 °C)
Explosive properties	:	No data is available on the product itself.
Oxidizing properties	:	None. Method: Directive 67/548/EEC, Annex V, A.21
Molecular weight	:	245 g/mol
Metal corrosion rate	:	Not corrosive to metals
Particle size	:	No data is available on the product itself.

SECTION 10. STABILITY AND REACTIVITY

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	:	None known.
Incompatible materials	:	Incompatible with acids. Isocyanates
Hazardous decomposition products	:	No hazardous decomposition products are known.

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SECTION 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure : No data is available on the product itself.

Acute toxicity

Acute oral toxicity - Product : Acute toxicity estimate : 1,361 mg/kg
Method: Calculation method

Acute inhalation toxicity : No data available

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Acute dermal toxicity : LD50 (Rabbit, male and female): 3,570 mg/kg
Method: OECD Test Guideline 402
Assessment: The substance or mixture has no acute dermal toxicity

Acute toxicity (other routes of administration) : No data available

Skin corrosion/irritation**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Species: Rabbit
Exposure time: 4 h
Assessment: Corrosive, category 1C - where responses occur after exposures between 1 hour and 4 hours and observations up to 14 days.
Method: OECD Test Guideline 404
Result: Corrosive after 1 to 4 hours of exposure

Serious eye damage/eye irritation**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Species: Rabbit
Result: Corrosive
Assessment: Corrosive
Method: OECD Test Guideline 405

Respiratory or skin sensitisation**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Exposure routes: Skin
Species: Guinea pig
Assessment: Did not cause sensitisation on laboratory animals.
Method: OECD Test Guideline 406
Result: Does not cause skin sensitisation.

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Assessment: No data available

Germ cell mutagenicity**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Genotoxicity in vitro

: Test Type: reverse mutation assay

Test system: Salmonella tryphimurium and E. coli

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 471

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 476

Result: negative

Test Type: unscheduled DNA synthesis assay

Test system: rodent hepatocytes

Method: OECD Test Guideline 482

Result: negative

Test Type: Chromosome aberration test in vitro

Test system: Chinese hamster ovary cells

Metabolic activation: with and without metabolic activation

Method: OECD Test Guideline 473

Result: negative

Genotoxicity in vivo : No data available

Germ cell mutagenicity-
Assessment : No data available**Carcinogenicity**

No data available

Carcinogenicity -
Assessment : No data available**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 on OSHA's list of regulated carcinogens.

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.

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Reproductive toxicity**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Effects on fertility : Test Type: Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test
Species: Rat, male and female
Application Route: Oral
Dose: 0, 25, 100, 250 milligram per kilogram
Duration of Single Treatment: 15 - 35 d
Frequency of Treatment: 7 days/week
General Toxicity - Parent: No observed adverse effect level:
100 mg/kg body weight
Target Organs: Liver
Method: OECD Test Guideline 422
Result: negative
GLP: yes

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Effects on foetal development : Species: Rat, female
Application Route: Oral
Dose: 25/100/250 milligram per kilogram
Duration of Single Treatment: 17 d
Frequency of Treatment: 7 days/week
General Toxicity Maternal: No observed adverse effect level:
100 mg/kg body weight
Developmental Toxicity: No observed adverse effect level:
250 mg/kg body weight
Method: OECD Test Guideline 414
GLP: yes

Reproductive toxicity - Assessment : No data available

STOT - single exposure

No data available

STOT - repeated exposure

No data available

Repeated dose toxicity**Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Species: Rat, male and female
NOAEL: < 25 mg/kg
Application Route: oral (gavage)
Exposure time: 15 - 35 days
Number of exposures: 7 days/week
Method: OECD Test Guideline 422

Species: Rat, female
NOEL: 25 mg/kg

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Application Route: oral (gavage)
Exposure time: 90 days
Number of exposures: 7 days/week
Dose: 10/25/75 mg/kg bw/day
Method: OECD Test Guideline 408
Remarks: Subchronic toxicity

Species: Rat, male
NOEL: 10 mg/kg
Application Route: oral (gavage)
Exposure time: 90 days
Number of exposures: 7 days/week
Dose: 10/25/75 mg/kg bw/day
Method: OECD Test Guideline 408
Remarks: Subchronic toxicity

Repeated dose toxicity - : No data available
Assessment

Aspiration toxicity

No data available

Experience with human exposure

General Information: No data available

Inhalation: No data available

Skin contact: No data available

Eye contact: No data available

Ingestion: No data available

Toxicology, Metabolism, Distribution

No data available

Neurological effects

No data available

Further information

Ingestion: No data available

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SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity****Components:**

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Toxicity to fish : LC50 (Oncorhynchus mykiss (rainbow trout)): 148 mg/l
Exposure time: 96 h
Test Type: semi-static test
Test substance: Fresh water
Method: OECD Test Guideline 203

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Toxicity to daphnia and other aquatic invertebrates : EC50 (Daphnia magna (Water flea)): 26 mg/l
Exposure time: 48 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 202
GLP: yes

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Toxicity to algae/aquatic plants : ErC50 (Selenastrum capricornutum (green algae)): 33 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

NOEC (Selenastrum capricornutum (green algae)): 12.5 mg/l
Exposure time: 72 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 201
GLP: yes

M-Factor (Acute aquatic toxicity) : No data available

Toxicity to fish (Chronic toxicity) : No data available

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : Chronic Toxicity Value: 7.2 mg/l
Exposure time: 21 d
Method: QSAR

M-Factor (Chronic aquatic toxicity) : No data available

Components:

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1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Toxicity to microorganisms : EC50 (activated sludge): > 100 mg/l
Exposure time: 3 h
Test Type: static test
Test substance: Fresh water
Method: OECD Test Guideline 209
GLP: yes

Toxicity to soil dwelling organisms : No data available

Plant toxicity : No data available

Sediment toxicity : No data available

Toxicity to terrestrial organisms : No data available

Ecotoxicology Assessment

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Acute aquatic toxicity : Harmful to aquatic life.

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Toxicity Data on Soil : No data available

Other organisms relevant to the environment : No data available

Persistence and degradability

Biodegradability - Product : Inoculum: activated sludge
Result: Not readily biodegradable.
Biodegradation: 2 %
Exposure time: 18 d
Method: OECD Test Guideline 301D

Biochemical Oxygen Demand (BOD) : No data available

Chemical Oxygen Demand (COD) : No data available

BOD/COD : No data available

ThOD : No data available

BOD/ThOD : No data available

Dissolved organic carbon (DOC) : No data available

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Physico-chemical
removability : No data available

Stability in water : No data available

Photodegradation : No data available

Impact on Sewage
Treatment : No data available

Bioaccumulative potential

Bioaccumulation : No data available

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Partition coefficient: n- : log Pow: 0.587 (72.7 °F / 22.6 °C)
octanol/water pH: 12
Method: OECD Test Guideline 107
GLP: yes

Mobility in soil

Mobility : No data available

Components:

1-[bis[3-(dimethylamino)propyl]amino]propan-2-ol:
Distribution among : Koc: 202
environmental compartments
Stability in soil : No data available

Other adverse effects

Environmental fate and
pathways : No data available

Results of PBT and vPvB
assessment : No data available

Endocrine disrupting
potential : No data available

Adsorbed organic bound
halogens (AOX) : No data available

Hazardous to the ozone layer

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).

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Additional ecological information - Product : An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life.

Global warming potential (GWP) : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**

Waste from residues : The product should not be allowed to enter drains, water courses or the soil.
Do not contaminate ponds, waterways or ditches with chemical or used container.
Send to a licensed waste management company.
Dispose of as hazardous waste in compliance with local and national regulations.
Dispose of contents/ container to an approved waste disposal plant.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION**International Regulations****IATA**

UN/ID No.	: UN 2735
Proper shipping name	: Amines, liquid, corrosive, n.o.s. (1-(BIS(3-(DIMETHYLAMINO)PROPYL)AMINO)-2-PROPANOL)
Class	: 8
Packing group	: III
Labels	: Class 8 - Corrosive substances
Packing instruction (cargo aircraft)	: 856
Packing instruction (passenger aircraft)	: 852

IMDG

UN number	: UN 2735
Proper shipping name	: AMINES, LIQUID, CORROSIVE, N.O.S. (1-(BIS(3-(DIMETHYLAMINO)PROPYL)AMINO)-2-PROPANOL)
Class	: 8
Packing group	: III
Labels	: 8
EmS Code	: F-A, S-B

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Marine pollutant : no

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable for product as supplied.

National Regulations**DOT Classification**

UN/ID/NA number : UN 2735
Proper shipping name : AMINES, LIQUID, CORROSIVE, N.O.S.
(1-(BIS(3-(DIMETHYLAMINO)PROPYL)AMINO)-2-PROPANOL)
Class : 8
Packing group : III
Labels : Class 8 - Corrosive substances
ERG Code : 153
Marine pollutant : no

Special precautions for user

The transport classification(s) provided herein are for informational purposes only, and solely based upon the properties of the unpackaged material as it is described within this Safety Data Sheet. Transportation classifications may vary by mode of transportation, package sizes, and variations in regional or country regulations.

SECTION 15. REGULATORY INFORMATION**EPCRA - Emergency Planning and Community Right-to-Know Act****CERCLA Reportable Quantity**

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
methyloxirane	75-56-9	100	*

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 311/312 Hazards : Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 : 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.

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

California Prop. 65

WARNING: This product can expose you to chemicals including methyloxirane, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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

CH INV : On the inventory, or in compliance with the inventory

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DSL : All components of this product are on the Canadian DSL

AICS : Not in compliance with the inventory

ENCS : Not in compliance with the inventory

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

KECI : 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

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

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

Inventories

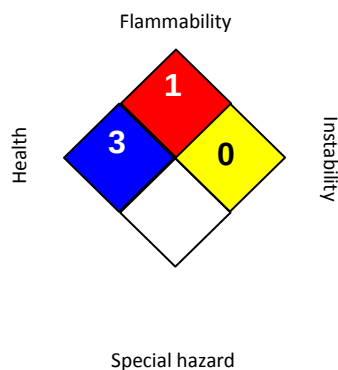
AICS (Australia), DSL (Canada), IECSC (China), REACH (European Union), ENCS (Japan), ISHL (Japan), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (USA)

TSCA - 5(a) Significant New Use Rule List of Chemicals

No substances are subject to a Significant New Use Rule.

US. Toxic Substances Control Act (TSCA) Section 12(b) Export Notification (40 CFR 707, Subpt D)

No substances are subject to TSCA 12(b) export notification requirements.

SECTION 16. OTHER INFORMATION**Further information****NFPA 704:****HMIS® IV:**

HEALTH	*	3
FLAMMABILITY		1
PHYSICAL HAZARD		0

HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. The "*" represents a chronic hazard, while the "/" represents the absence of a chronic hazard

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THE PRODUCT MAY PRESENT HAZARDS AND SHOULD BE USED WITH CAUTION. WHILE CERTAIN HAZARDS ARE DESCRIBED IN THIS PUBLICATION, NO GUARANTEE IS MADE THAT THESE ARE THE ONLY HAZARDS THAT EXIST.

Hazards, toxicity and behaviour of the products may differ when used with other materials and are dependent upon the manufacturing circumstances or other processes. Such hazards, toxicity and behaviour should be determined by the user and made known to handlers, processors and end users.

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