

**CABLE CAST FR CURING AGENT**

This product appears in the following stock number(s):

15051 DF070

Last revised: 04/26/02

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**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Tradename:** CABLE CAST FR CURING AGENT**Product Identifier:** FLEXANE CURING AGENT**General use:** The information below applies to the hardener component of the two-part kit. After proper curing, this product is not hazardous.**Chemical family:** Polyamine solution**MANUFACTURER**ITW Devcon  
30 Endicott St.  
Danvers, MA 01923**EMERGENCY INFORMATION****Emergency telephone number**  
**(CHEMTREC): (800) 424-9300**  
**Other Calls: (978) 777-1100****2. COMPOSITION/INFORMATION ON INGREDIENTS****HAZARDOUS CONSTITUENTS****Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Oleic acid		112801	1-10	n/e	n/e	n/e
Ethanol, 2-chloro-,phosphate		115968	1-5	n/e	n/e	n/e
Carbon black		1333864	<1	3.5 mg/m <sup>3</sup>	3.5 mg/m <sup>3</sup>	n/e
Tri (2-chloroisopropyl) phosphate		13674845	50-90	n/e	n/e	n/e
Diethyltoluenediamine		68479981	15-30	n/e	n/e	0.02 ppm (manufacturer)

"TLV" means the Threshold Limit Value exposure (eight-hour, time-weighted average, unless otherwise noted) established by the American Conference of Governmental Industrial Hygienists. "STEL" indicates a short-term exposure limit. "PEL" indicates the OSHA Permissible Exposure Limit. "n/e" indicates that no exposure limit has been established. An asterisk (\*) indicates a substance whose identity is a trade secret of our supplier and unknown to us.

**3. HAZARDS IDENTIFICATION****Emergency Overview**

Appearance, form, odor: Mobile, black liquid with mild, ammonia-like odor.

<b>WARNING! Eye, skin and respiratory irritant. Harmful if inhaled, ingested or absorbed through skin. May cause methemoglobin formation. May cause delayed allergic skin reaction.</b>
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**Potential health effects**

**Primary routes of exposure:**  Skin contact  Skin absorption  Eye contact  Inhalation  Ingestion

**Symptoms of acute overexposure:**

**Skin:** May cause irritation. Expected to be toxic by dermal absorption.

**Eyes:** May cause irritation.

**Inhalation:**

Vapors or mists may cause irritation of upper respiratory tract (nasal discharge, coughing). Severe overexposure may result in difficulty breathing, nausea, drowsiness, vomiting).

**Ingestion:**

Expected to be severe toxic. May cause burning of mouth, throat, and stomach (abdominal and chest pain, nausea, vomiting, diarrhea, thirst, weakness, collapse).

**Effects of chronic overexposure:**

A two-year feeding study in rats showed that the aromatic amine caused effects in the pancreas, liver, thyroid, and eyes. An increase in the number of liver and thyroid tumors of male rats and possibly the mammary gland of female rats was found.

**Carcinogenicity -- OSHA regulated:** No

**ACGIH:** No

**National Toxicology Program:** No

**International Agency for Research on Cancer:** Yes

**Other agency:** Animal test (Amine)

**Cancer-suspect constituent(s) :** IARC: Respirable Carbon Black dusts

**Medical conditions which may be aggravated by exposure:**

Pre-existing eye and skin disorders.

**Other effects:**

Rare instances of sensitization to the aromatic amine curing agent have been reported to occur in humans.

**4. FIRST AID MEASURES****First aid for eyes:**

Flush eye with clean water for at least 15 minutes while gently holding eyelids open. Get medical attention.

**First aid for skin:**

Remove contaminated clothing and shoes. Wash thoroughly with soap and warm water. Consult a physician if irritation develops.

**First aid for inhalation:**

Unlikely unless material is heated. Remove patient to fresh air; consult a physician.

**First aid for ingestion:**

If patient is conscious, dilute with at least two glasses of water and induce vomiting. Get immediate medical attention.

**5. FIRE FIGHTING MEASURES****Extinguishing media:**

Water  Carbon dioxide  Dry chemical  Foam  Alcohol foam

**Flash Point (°F):** >275

**Method:** TCC

**Explosive limits in air (percent) -- Lower:** n/d

**Upper:** n/d

**Special firefighting procedures:**

Avoid breathing fumes. In fires where large amounts of this product are stored, firefighters should wear full protective gear and self-contained breathing apparatus. Use water spray to cool containers.

**Unusual fire and explosion hazards:**

Water or foam may cause frothing.

**Hazardous products of combustion:**

Oxides of carbon and nitrogen, hydrogen chloride, phosphorous oxides, and other toxic smoke compounds.

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**6. ACCIDENTAL RELEASE MEASURES****Spill control:**

Avoid personal contact. Eliminate ignition sources. Ventilate area.

**Containment:**

Dike, contain and absorb with clay, sand or other suitable material.

**Cleanup:**

For large spills, pump to storage/salvage vessels. Soak up residue with an absorbent such as clay, sand, or other suitable material and dispose of properly. Flush area with water to remove trace residue.

**Special procedures:**

Do not contaminate soil, waters or sewers with unmixed hardener. Prevent spill from entering drainage/sewer systems, waterways, and surface waters.

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**7. HANDLING AND STORAGE****Handling precautions:**

Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after using and particularly before eating, drinking, smoking, applying cosmetics, or using toilet facilities.

Laundry contaminated clothing and protective gear before reuse. Discard contaminated leather articles.

Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against dust during sanding/grinding of cured product.

**Storage:**

---Store well closed in a cool, ventilated area away from oxidizing materials, heat, and ignition sources. Purge with nitrogen and close container when not in use. Keep below 122 deg F, product may degrade. Contents have plasticizing properties which may soften or deteriorate certain plastics and elastomers (particularly vinyl-based resins, neoprene and natural rubbers).

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Engineering controls****Ventilation :**

Local exhaust is recommended where the material is heated. General mechanical ventilation is adequate for normal use.

**Other engineering controls :**

Have emergency eye wash and safety showers available.

**Personal protective equipment****Eye and face protection:**

Safety glasses with side shields, or splashproof goggles.

**Skin protection:**

Chemical resistant rubber gloves (neoprene over natural latex) and other protective gear as required to prevent skin contact.

**Respiratory protection:**

None required with adequate ventilation. If the material is heated, wear NIOSH-approved organic vapor/ acid gas

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respirator with dust, mist, fume filter to reduce exposure.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Specific gravity:</b>	1.22	<b>Boiling point (°F):</b>	>212
<b>Melting point (°F):</b>	n/d	<b>Vapor density (air = 1):</b>	n/d
<b>Vapor pressure (mmHg):</b>	n/d at 0 °F	<b>Evaporation rate (butyl acetate = 1):</b>	n/d
<b>VOC (grams/liter):</b>	n/d	<b>Solubility in water:</b>	n/d
<b>Percent volatile by volume:</b>	n/d	<b>pH (5% solution or slurry in water):</b>	> 7
<b>Percent solids by weight:</b>	n/d		

## 10. STABILITY AND REACTIVITY

This material is chemically stable. Hazardous polymerization will not occur.

### Conditions to avoid :

Extreme heat and open flame. Prolonged storage at temperatures above 122 deg F.

### Incompatible materials:

Strong acids, alkalis and oxidizers.

### Hazardous products of decomposition:

Oxides of carbon and nitrogen; hydrogen chloride, phosphorous oxides, aldehydes & nitro compounds from incomplete combustion. May hydrolyze slowly.

### Conditions under which hazardous polymerization may occur:

Not expected to occur.

## 11. TOXICOLOGICAL INFORMATION

**Acute oral effects:** LD50 (rat): >500 mg/kg

**Acute dermal effects:** LD50 (rabbit): >1000 mg/kg

**Acute inhalation effects:** LC50 (rat): No data

Exposure: hours.

### Eye irritation:

Not available.

### Subchronic effects:

Not available.

### Carcinogenicity, teratogenicity, and mutagenicity:

A two-year feeding study in rats showed that DETDA caused an increase in the number of liver and thyroid tumors of male rats and possibly the mammary gland of female rats. Carbon black has been shown to have In Vivo mutagenic

effects on a rat lung cells.

**Other chronic effects:**

A two-year feeding study in rats with DETDA caused effects in the pancreas, liver, thyroid, and eyes.

**Toxicological information on hazardous chemical constituents of this product:**

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Oleic acid	74 g/kg	n/d	n/d
Ethanol, 2-chloro-,phosphate	1230 mg/kg	>20 mL/kg	n/d
Carbon black	n/d	n/d	6750 mg/m3
Tri (2-chloroisopropyl) phosphate	n/d	n/d	n/d
Diethyltoluenediamine	> 500 mg/kg	> 700 mg/kg	> 0.6 mg/L

'n/d' = 'not determined'

**12 ECOLOGICAL INFORMATION****Ecotoxicity:**

Not available.

**Mobility and persistence:**

Not available.

**Environmental fate:**

Not available.

**13. DISPOSAL CONSIDERATIONS**

Please see also Section 15, Regulatory Information.

**Waste management recommendations:**

Discard as non-hazardous waste in accordance with applicable federal, state, and local regulation.

**14. TRANSPORT INFORMATION**

**Proper shipping name:** Non-regulated

**Technical name :** N/A

**Hazard class :** N/A

**UN number:** N/A

**Packing group:** N/A

**Emergency Response Guide no.:** N/A

**IMDG page number:** N/A

**Other:** N/A

**15. REGULATORY INFORMATION**

**U.S. Federal Regulations**

**TSCA**

All ingredients of this product are listed, or are exempt from listing, on the TSCA inventory.

**The following RCRA code(s) applies to this material if it becomes waste:**

None

**Regulatory status of hazardous chemical constituents of this product:**

Constituent	Extremely Hazardous*	Toxic Chemical**	CERCLA RQ (lbs)	TSCA 12B Export Notification
Oleic acid	No	No	0.0	Not required
Ethanol, 2-chloro-,phosphate	No	No	0.0	Not required
Carbon black	No	No	0.0	Not required
Tri (2-chloroisopropyl) phosphate	No	No	0.0	Not required
Diethyltoluenediamine	No	No	0.0	Not required

\*Consult the appropriate regulations for emergency planning and release reporting requirements for substances on the SARA Section 301 Extremely Hazardous Substance list.

\*\*Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. For specific requirements, consult the appropriate regulations.

**For purposes of SARA Section 312 hazardous materials inventory reporting, the following hazard classes apply to this material:** - Immediate health hazard -- Delayed health hazard -

**Canadian regulations**

**WHMIS hazard class(es) :** D2B; D2A

**16. OTHER INFORMATION**

<b>Hazardous Materials Identification System (HMIS) ratings:</b>	<b>Health</b>	<b>Flammability</b>	<b>Reactivity</b>
	<b>2*</b>	<b>1</b>	<b>0</b>

**Revisions for this issue:**

MSDS section	Revisions
2	Modified formulation

The information and recommendations in this document are based on the best information available to us at the time of preparation, but we make no other warranty, express or implied, as to its correctness or completeness, or as to the results of reliance on this document.

**CABLE CAST FR RESIN**

This product appears in the following stock number(s):

15051 DF051

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Printed: 7/1/2004

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION****Tradename:** CABLE CAST FR RESIN**Product Identifier:** FLEXANE RESIN**General use:** The following information applies only to the resin component of the two-part kit. After proper mixing and curing, the product is not hazardous.**Chemical family:** Isocyanate-terminated polyurethane prepolymer**MANUFACTURER**ITW Devcon  
30 Endicott St.  
Danvers, MA 01923**EMERGENCY INFORMATION****Emergency telephone number****(CHEMTREC): (800) 424-9300****Other Calls: (978) 777-1100****2. COMPOSITION/INFORMATION ON INGREDIENTS****HAZARDOUS CONSTITUENTS****Exposure limits**

Constituent	Abbr.	CAS No.	Weight percent	ACGIH TLV	OSHA PEL	Other Limits
Methylene bis(4-cyclohexylisocyanate) (PICM)	PICM	5124301	10-20	0.005 ppm	0.01 ppm (C)	n/e
Related prepolymers of PICM		68310521	80-90	n/e	n/e	n/e

"TLV" means the Threshold Limit Value exposure (eight-hour, time-weighted average, unless otherwise noted) established by the American Conference of Governmental Industrial Hygienists. "STEL" indicates a short-term exposure limit. "PEL" indicates the OSHA Permissible Exposure Limit. "n/e" indicates that no exposure limit has been established. An asterisk (\*) indicates a substance whose identity is a trade secret of our supplier and unknown to us.

**3. HAZARDS IDENTIFICATION****Emergency Overview**

Appearance, form, odor: clear liquid with slightly musty odor.

**WARNING!** Eye, skin and respiratory irritant. May cause skin or respiratory sensitization. May cause lung damage.**Potential health effects**

**Primary routes of exposure:**  Skin contact  Skin absorption  Eye contact  Inhalation  Ingestion

**Symptoms of acute overexposure:****Skin:** Redness, swelling; prolonged contact may cause blistering. May react with skin protein and moisture.**Eyes:** Irritation, reddening, tears. If left untreated, corneal damage can occur and injury is slow to heal.

**Inhalation:**

Unlikely unless heated or atomized; if so, may cause burning sensation of respiratory tract, cough, shallow breathing, burning sensation, tightness in chest, reduced lung function. Exposures above TLV may lead to bronchitis, bronchial spasm, pulmonary edema, chemical or hypersensitive pneumonitis.

**Ingestion:**

Could cause irritation and corrosive action of mouth, stomach tissue, and digestive tract (sore throat, abdominal pain, nausea, vomiting, diarrhea).

**Effects of chronic overexposure:**

Prolonged skin contact may cause blistering of the skin; prolonged eye contact may cause severe eye damage. Prolonged or repeated overexposure may cause skin and/or respiratory sensitization (itching, hives, swellings, and/or asthma-like symptoms) which could occur immediately or delayed. Overexposure to isocyanates has also been reported to cause lung damage (decreased lung function).

**Carcinogenicity -- OSHA regulated: No****ACGIH: No****National Toxicology Program: No****International Agency for Research on Cancer: No****Cancer-suspect constituent(s) : None****Medical conditions which may be aggravated by exposure:**

Skin allergies, eczema, asthma, and other respiratory disorders (bronchitis, emphysema, bronchial hyperreactivity).

**Other effects:**

Once sensitized an individual can experience non-specific asthmatic responses upon exposures to dust, cold air, or other irritants.

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**4. FIRST AID MEASURES****First aid for eyes:**

Flush eye with clean water for at least 15 minutes while gently holding eyelids open. Get immediate medical attention.

**First aid for skin:**

Immediately remove contaminated clothing and excess contaminant. Flush skin with water for 15 minutes. Wash thoroughly with soap and warm water. Consult a physician if irritation develops.

**First aid for inhalation:**

Remove patient to fresh air. Administer oxygen if breathing is difficult. Get medical attention.

**First aid for ingestion:**

Consult a physician immediately. Do NOT induce vomiting. If patient is conscious, give milk or water. Never give anything by mouth to an unconscious person. If vomiting occurs spontaneously, keep head below hips to prevent aspiration.

**Note to physician :**

EYES: stain for evidence of corneal injury. If corneal is burned, instill antibiotic steroid preparation frequently. Workplace vapors have produced reversible corneal epithelial edema impairing vision. SKIN: treat symptomatically as for contact dermatitis or thermal burns. INGESTION: treat symptomatically. Inducing vomiting is contraindicated because of irritating nature. RESPIRATORY: treat symptomatically. Remove a sensitized individual from exposure to any isocyanate.

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**5. FIRE FIGHTING MEASURES****Extinguishing media:** Water Carbon dioxide Dry chemical Foam Alcohol foam

**Flash Point (°F):** 453**Method:** PMCC**Explosive limits in air (percent) -- Lower:** n/d **Upper:** n/d**Special firefighting procedures:**

Firefighters should wear self-contained breathing apparatus and full protective equipment. Containers exposed to fire may be cooled with water spray.

**Unusual fire and explosion hazards:**

Extreme heat decomposing polymerized MDI or contamination with water (which reacts with resin, releasing carbon dioxide) could burst closed containers. Personnel in vicinity and downwind should be evacuated.

**Hazardous products of combustion:**

Oxides of carbon and nitrogen, traces of HCN and volatilized isocyanates (MDI), other unknown irritating and/or toxic gases or mists may be present

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**6. ACCIDENTAL RELEASE MEASURES****Spill control:**

Evacuate and ventilate area. Wear full protective equipment including respiratory equipment. Dike spill to prevent entry into water system. A blanket of protein foam may be placed over spill for temporary control of isocyanate vapor.

**Containment:**

Dike with sawdust or other absorbent.

**Cleanup:**

Pump large quantities into closed but not sealed container. Absorb small spills with absorbent and shovel into unsealed containers, transport to well-ventilated area (outside) and treat with neutralizing solution (allow to stand 48 hrs uncovered to allow CO<sub>2</sub> to escape). Decontaminate residual area with neutralizing solution (allow to stand 15 minutes).

**Special procedures:**

Neutralizing solution: 90% water, 3-8% concentrated ammonia, 2% detergent; mix 10 parts neutralizer to 1 part isocyanate.

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**7. HANDLING AND STORAGE****Handling precautions:**

Do not breathe aerosols or vapors, material can produce asthmatic sensitization upon either single inhalation exposure to a relatively high concentration or upon repeated lower concentrations. Keep hands away from eyes when handling this material.

Avoid contact with skin, eyes, or clothing. Wash thoroughly with soap and water after using and particularly before eating, drinking, smoking, applying cosmetics, or using toilet facilities.

Launder contaminated clothing and protective gear before reuse. Discard contaminated leather articles.

Provide appropriate ventilation/respiratory protection against decomposition products (see Section 10) during welding/flame cutting operations and to protect against nuisance dust during sanding/grinding of cured product.

**Storage:**

Store tightly closed in a cool, dry place (64-86 F). Don't let moisture contaminate this material; it reacts with water to release carbon dioxide, which could build up pressure in closed containers and lead to bursting (do NOT reseal if moisture contamination is suspected).

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**8. EXPOSURE CONTROLS/PERSONAL PROTECTION****Engineering controls****Ventilation :**

Local exhaust is recommended for confined areas. General mechanical ventilation is adequate for normal use. Ventilation should in any case keep isocyanate concentrations below the TLVs.

**Other engineering controls :**

Isocyanate exposure levels must be monitored. Medical supervision of all employees who handle or come in contact with isocyanates is recommended (i.e. FEV, FVC); once sensitized no further exposure can be permitted. Provide safety showers and eye wash stations.

**Personal protective equipment****Eye and face protection:**

Face shield or splash proof goggles.

**Skin protection:**

Chemical resistant rubber gloves (butyl rubber, nitrile rubber) and other protective gear as required to prevent skin contact.

**Respiratory protection:**

None required at normal handling temperatures with adequate ventilation. A positive pressure, supplied air respirator or a self-contained breathing apparatus when concentrations of MDI exceed the TLV.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Specific gravity:</b>	1.04 @ 77 F	<b>Boiling point (°F):</b>	>300
<b>Melting point (°F):</b>	n/d	<b>Vapor density (air = 1):</b>	8.5 MDI
<b>Vapor pressure (mmHg):</b>	< 10 mm Hg (MDI) at 77 F	<b>Evaporation rate (butyl acetate = 1):</b>	n/d
<b>VOC (grams/liter):</b>	0	<b>Solubility in water:</b>	not soluble
<b>Percent volatile by volume:</b>	0	<b>pH (5% solution or slurry in water):</b>	n/d
<b>Percent solids by weight:</b>	100		

**10. STABILITY AND REACTIVITY**

This material is chemically stable. Hazardous polymerization may occur.

**Conditions to avoid :**

Extreme heat or open flame. Moisture.

**Incompatible materials:**

Alcohols, amines, strong bases, metal compounds and surface active materials; the resin reacts slowly with water to give off carbon dioxide.

**Hazardous products of decomposition:**

Oxides of carbon and nitrogen, traces of HCN and volatilized isocyanates (MDI).

**Conditions under which hazardous polymerization may occur:**

Temperatures above 400 F. Moisture.

**11. TOXICOLOGICAL INFORMATION**

**Acute oral effects:** LD50 (rat): >15.8 g/kg

**Acute dermal effects:** LD50 (rabbit): > 7900 mg/kg

Moderate irritant. MDI: produced dermal sensitization (several species). PICM: applied intradermally caused weak resp. sensitization response (guineapig)

**Acute inhalation effects:** LC50 (rat): No data available.

Exposure: hours.

Respiratory sensitization response in guinea pigs.

**Eye irritation:**

Slight irritation. A maximum primary eye irritation score for a polymeric MDI of 12.0/110 (24 hr) was obtained.

**Carcinogenicity, teratogenicity, and mutagenicity:**

PICM: Ames test negative for mutagenicity with and without enzyme activation.

**Toxicological information on hazardous chemical constituents of this product:**

Constituent	Oral LD50 (rat)	Dermal LD50 (rabbit)	Inhalation LC50 4hr, (rat)
Methylene bis(4-cyclohexylisocyanate) (PICM)	9900 mg/kg	10,000 mg/kg	300 mg/m <sup>3</sup>
Related prepolymers of PICM	n/d	n/d	n/d

'n/d' = 'not determined'

## 12 ECOLOGICAL INFORMATION

**Ecotoxicity:**

LC50 - 24 hr (static): Greater than 500 mg/liter for Daphnia magna, Limnea stagnalis, and Zebra fish (Brachydanio rerio) for both polymeric and monomeric MDI.

**Mobility and persistence:**

No data.

**Environmental fate:**

No data.

## 13. DISPOSAL CONSIDERATIONS

Please see also Section 15, Regulatory Information.

**Waste management recommendations:**

Discard in accordance with federal, state and local regulation. Incineration is the preferred method

**14. TRANSPORT INFORMATION**

**Proper shipping name:** Non-regulated  
**Technical name :** N/A  
**Hazard class :** N/A  
**UN number:** N/A  
**Packing group:** N/A  
**Emergency Response Guide no.:** N/A  
**IMDG page number:** N/A  
**Other:** N/A

**15. REGULATORY INFORMATION****U.S. Federal Regulations****TSCA**

All ingredients of this product are listed, or are exempt from listing, on the TSCA inventory.

**The following RCRA code(s) applies to this material if it becomes waste:**

None

**Regulatory status of hazardous chemical constituents of this product:**

Constituent	Extremely Hazardous*	Toxic Chemical**	CERCLA RQ (lbs)	TSCA 12B Export Notification
Methylene bis(4-cyclohexylisocyanate) (PICM)	No	Yes	0.0	Not required
Related prepolymers of PICM	No	No	0.0	Not required

\*Consult the appropriate regulations for emergency planning and release reporting requirements for substances on the SARA Section 301 Extremely Hazardous Substance list.

\*\*Substances for which the "Toxic Chemical" column is marked "Yes" are on the SARA Section 313 list of Toxic Chemicals, for which release reporting may be required. For specific requirements, consult the appropriate regulations.

**For purposes of SARA Section 312 hazardous materials inventory reporting, the following hazard classes apply to this material:** - Immediate health hazard -- Delayed health hazard -- Reactivity hazard -

**Canadian regulations**

**WHMIS hazard class(es) :** D2A: D2B

All components of this product are on the Domestic Substances List or the Non-Domestic Substances List

**16. OTHER INFORMATION**

<b>Hazardous Materials Identification System (HMIS) ratings:</b>	<b>Health</b> 3*	<b>Flammability</b> 1	<b>Reactivity</b> 1
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**Revisions for this issue:**

<b>MSDS section</b>	<b>Revisions</b>
11	Updated toxicology data

The information and recommendations in this document are based on the best information available to us at the time of preparation, but we make no other warranty, express or implied, as to its correctness or completeness, or as to the results of reliance on this document.