

# SAFETY DATA SHEET



Date Issued : 4/4/2013  
MSDS No : TC-284 PART A

## TC-284 PART A

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** TC-284 PART A  
**GENERAL USE:** Polyurethane resin  
**CHEMICAL FAMILY:** Aromatic diisocyanate

#### MANUFACTURER

BJB Enterprises, Inc.  
14791 Franklin Avenue  
Tustin, CA 92780

**Customer Service Number:** (714) 734-8450

**Fax:** (714) 734-8929

#### 24 HR. EMERGENCY TELEPHONE NUMBERS

**CHEMTREC (US Transportation):** (800) 424-9300  
or (703) 527-3887

### 2. HAZARDS IDENTIFICATION

#### HAZARD DESIGNATION

"Xn" - Harmful

R20: Harmful by inhalation.

R36/37/38: Irritating to eyes, respiratory system and skin.

R42/43: May cause sensitization by inhalation and skin contact.

R48/20: Harmful : danger of serious damage to health by prolonged exposure through inhalation.

#### GHS CLASSIFICATIONS

##### Health

Acute Toxicity (Inhalation), Category 4

Skin Irritation, Category 2

Eye Irritation, Category 2

Respiratory Sensitization, Category 1



Skin Sensitization, Category 1

Carcinogenicity, Category 2

Target Organ Toxicity (Single exposure), Category 3

#### GHS LABEL

## TC-284 PART A

 Exclamation mark	 Health hazard
WARNING	DANGER
H332: Harmful if inhaled. H315: Causes skin irritation. H319: Causes serious eye irritation. H317: May cause an allergic skin reaction. H335: May cause respiratory irritation.	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled. H351: Suspected of causing cancer .
<p><b>PRECAUTIONARY STATEMENT(S)</b></p> <p><b>Prevention:</b></p> <p>P202: Do not handle until all safety precautions have been read and understood.          P261: Avoid breathing dust/fume/gas/mist/vapours/spray.          P271: Use only outdoors or in a well-ventilated area.          P285: In case of inadequate ventilation wear respiratory protection.          P264: Wash ... thoroughly after handling.          P280: Wear protective gloves/protective clothing/eye protection/face protection.          P272: Contaminated work clothing should not be allowed out of the workplace.</p> <p><b>Response:</b></p> <p>P304+P341: IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing.          P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.          P302+P352: IF ON SKIN: Wash with plenty of soap and water.          P333+P313: If skin irritation or rash occurs: Get medical advice/attention.          P362: Take off contaminated clothing and wash before reuse.          P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.          P337+P313: If eye irritation persists: Get medical advice/attention.          P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.          P331: Do NOT induce vomiting.</p> <p><b>Storage:</b></p> <p>P403+P233: Store in a well-ventilated place. Keep container tightly closed.          P405: Store locked up.</p> <p><b>Disposal:</b></p> <p>P501: Dispose of contents/container in accordance with local/regional/national/international regulations.</p>	

**EMERGENCY OVERVIEW**

**PHYSICAL APPEARANCE AND ODOR:** Pale yellow liquid with a slight musty odor.

**IMMEDIATE CONCERNS:** Harmful by inhalation. Use in well ventilated areas. Irritating to eyes and respiratory system. May cause sensitization by inhalation and skin contact. This product is a respiratory irritant and potential respiratory sensitizer: repeated inhalation of vapour or aerosol at levels above the occupational exposure limit could cause respiratory sensitization. A hyper-reactive response to even minimal concentrations of diisocyanates may develop in sensitized persons. The onset of the respiratory symptoms may be delayed for several hours after exposure.

Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures. Do not breathe vapor or mist. Do not get on skin or clothing. Avoid contact with eyes. Use only with adequate ventilation. Keep container tightly closed and sealed until ready for use. Wash thoroughly after handling.

**POTENTIAL HEALTH EFFECTS**

**EYES:** May cause irritation, tearing, reddening, and swelling.

**SKIN:** May cause irritation and possible allergic sensitivity with repeated contact.

**INGESTION:** Slightly hazardous in case of ingestion.

**INHALATION:** Hazardous in case of inhalation (lung irritant, lung sensitizer).

**MEDICAL CONDITIONS AGGRAVATED:** May cause or aggravate dermatitis and asthma.

**TC-284 PART A**

**ROUTES OF ENTRY:** Eye and skin contact, inhalation of vapors, or accidental ingestion.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	Wt.%	CAS	EINECS
4,4'-Diphenylmethane diisocyanate	40 - 60	101-68-8	202-966-0
benzene, 1,1'-methylenebis[4-isocyanato-, homopolymer	40 - 60	25686-28-6	500-040-3

**4. FIRST AID MEASURES**

**EYES:** Immediately rinse with water. Remove contact lenses. Hold eyelids apart and flush eyes with water for at least 15 minutes. Get immediate medical attention.

**SKIN:** Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**INGESTION:** If swallowed, call a physician immediately. Do not induce vomiting unless directed to do so by medical personnel. Provided the patient is conscious, wash out mouth with water. Never give anything by mouth to an unconscious person.

**INHALATION:** Remove patient from exposure, keep warm and at rest. Obtain immediate medical attention. Treatment is symptomatic for primary irritation or bronchospasm. If breathing is labored, oxygen should be administered by qualified personnel. Apply artificial respiration if breathing has ceased or shows signs of failing.

**NOTES TO PHYSICIAN:** Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

**5. FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Use a suitable extinguishing agent for the surrounding fire.

**EXPLOSION HAZARDS:** Avoid contact with strong oxidizers and strong acids, as sudden reaction may result in fire and toxic fumes. Reacts slowly with water to produce carbon dioxide which may rupture closed containers. This reaction accelerates at higher temperatures.

**FIRE FIGHTING PROCEDURES:** Cool fire exposed containers with water spray. Remove containers from the fire area if possible. Do not release runoff from fire control methods to sewers or waterways.

**FIRE FIGHTING EQUIPMENT:** Firefighters should wear positive pressure self-contained breathing apparatus (SCBA) and consider use of unmanned hose holders or monitor nozzles for fighting large fires.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, nitrogen oxides, hydrocarbons and HCN.

**6. ACCIDENTAL RELEASE MEASURES**

**SMALL SPILL:** Evacuate the area. Clean-up should only be performed by trained personnel. People dealing with a major spill should wear full protective clothing including appropriate respiratory protection. Prevent product spill from entering sewers or waterways. Neutralize small spills with a decontaminant.

**LARGE SPILL:** Contain and absorb large spills onto an inert, non-flammable adsorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spill area clean with a liquid decontaminant. Remove and properly dispose of residues. Notify applicable government authorities if release is reportable. (See CERCLA in Section 15).

**RELEASE NOTES:** US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the US Coast Guard National Response Center is (800) 424-8802.

**7. HANDLING AND STORAGE**

**GENERAL PROCEDURES:** Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Avoid breathing vapor over open containers. Avoid open container exposure to damp air. Avoid breathing aerosols, mists, and vapors.

**HANDLING:** Use appropriate personal protective equipment as specified in Section 8. Handle in a well ventilated area. Handle and use in a manner consistent with good industrial/manufacturing techniques and practices.

**STORAGE:** Store in a cool, dry place, away from excessive heat, in original or similar container. Avoid unnecessary contact. Protect from freezing. Containers should be tightly sealed to prevent contamination with foreign materials.

**SHELF LIFE:** 6 months from date of shipment under manufacturers recommended storage conditions.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

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## EXPOSURE GUIDELINES

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)							
		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		SupplierOEL	
Chemical Name		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
4,4'-Diphenylmethane diisocyanate	TWA	0.02	0.2	0.005	0.05	0.005 <sup>[1]</sup>	0.05 <sup>[1]</sup>
	STEL	NE	NE	NE	NE	NE	NE
benzene, 1,1'-methylenebis[4-isocyanato-, homopolymer	TWA	NE	NE	NE	NE	NE	NE
	STEL	NE	NE	NE	NE	NE	NE
<b>OSHA TABLE COMMENTS:</b>							
1. NIOSH REL							

**ENGINEERING CONTROLS:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**EYES AND FACE:** Safety goggles or glasses are recommended. Plastic face shields should be used for complete face protection to protect against possible splashing or spraying of material. ANSI Z87.1 or approved equivalent.

**SKIN:** Chemical-resistant gloves and chemical goggles, face-shield, and synthetic apron or coveralls should be used to prevent contact with eyes, skin, or clothing. Wear nitrile or neoprene gloves. Chemical resistant gloves lined with polyethylene offer maximum protection.

**RESPIRATORY:** Exhaust ventilation recommended. An organic vapor cartridge or fresh air supplied respirator (NIOSH approved) may be necessary for certain applications. Consider the type of application, environmental concentrations, and other materials being used concurrently when determining respirator use and selection. Observe OSHA regulations for respirator use (29 CFR 1910.134).

**PROTECTIVE CLOTHING:** Protective clothing should be selected and used in accordance with 'Guidelines for the Selection of Chemical Protective Clothing' published by ACGIH.

**WORK HYGIENIC PRACTICES:** Contaminated clothing should be changed and washed before reuse. Eating, drinking and smoking in immediate work area should be prohibited. Wash hands before eating.

**OTHER USE PRECAUTIONS:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Training is important. Follow all label precautions.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL STATE:** Liquid

**ODOR:** Slightly musty

**COLOR:** Pale yellow

**pH:** Not Applicable

**PERCENT VOLATILE:** Nil

**FLASHPOINT AND METHOD:** 230°C (446°F) Open Cup

**VAPOR PRESSURE:** Not Established

**VAPOR DENSITY:** 8.5

**BOILING POINT:** > 300°C (572°F) Decomposes

**SOLUBILITY IN WATER:** Reacts slowly with water

**SPECIFIC GRAVITY:** 1.15 (water=1) at 25°C (77°F)

**VISCOSITY:** 425 Centipoise at 25°C (77°F)

**VOC (Volatile Organic Compound):** Nil Calculated. Theoretical VOC minus water and exempt solvents.

**10. STABILITY AND REACTIVITY**

**STABILITY:** This product is stable under normal ambient conditions of temperature and pressure.

**POLYMERIZATION:** May occur when exposed to heat in the presence of moisture, alkalis, tertiary amines, metal compounds.

**CONDITIONS TO AVOID:** High temperatures, moisture, and freezing conditions.

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**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, nitrous oxide, and HCN.

**INCOMPATIBLE MATERIALS:** This product will react with any materials containing active hydrogens such as water, alcohol, amines, bases and acids. This reaction with water is accelerated at higher temperatures. Some reactions may be violent.

**11. TOXICOLOGICAL INFORMATION****TOXICITY TO ANIMALS**

Chemical Name	ORAL LD <sub>50</sub> (rat)	DERMAL LD <sub>50</sub> (rabbit)	INHALATION LC <sub>50</sub> (rat)
4,4'-Diphenylmethane diisocyanate	> 10000 mg/kg	> 9400 mg/kg	0.49 mg/l (4 h)
benzene, 1,1'-methylenebis[4-isocyanato-, homopolymer	Not Established	Not Established	Not Established

**CARCINOGENICITY**

Chemical Name	IARC Status
4,4'-Diphenylmethane diisocyanate	3

**IARC:** This product contains substances that are not classifiable as carcinogens to humans.

**12. ECOLOGICAL INFORMATION****AQUATIC TOXICITY**

**96-HOUR LC<sub>50</sub>:** > 1000 mg/l Zebra Fish

**48-HOUR EC<sub>50</sub>:** > 1000 mg/l Daphnia magna (24 hour)

**96-HOUR EC<sub>50</sub>:** > 100 mg/l E.Coli

**Notes:** This information is based only on MDI and its derivatives.

**CHEMICAL FATE INFORMATION:** It is unlikely that significant environmental exposure in the air or water will arise based on consideration of the production and use of the substance.

**GENERAL COMMENTS:** Immiscible with water, but will react with water to produce an inert, non-biodegradable solids.

**13. DISPOSAL CONSIDERATIONS**

**DISPOSAL METHOD:** The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protections and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

**14. TRANSPORT INFORMATION****DOT (DEPARTMENT OF TRANSPORTATION) LAND**

**NOTE:** Not Regulated

**AIR (ICAO/IATA):** Not Regulated

**VESSEL (IMO/IMDG):** Not Regulated

**15. REGULATORY INFORMATION****UNITED STATES****SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

**311/312 HAZARD CATEGORIES:** Acute health hazard. Chronic health hazard

**313 REPORTABLE INGREDIENTS:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

**TC-284 PART A****EPCRA SECTION 313 SUPPLIER NOTIFICATION**

Chemical Name	Wt. %	CAS	Comments
4,4'-Diphenylmethane diisocyanate	40 - 60	101-68-8	Diisocyanate Compounds (Category Code N120)

**CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)**

**CERCLA REGULATORY:** For this/these chemicals, release of more than the Reportable Quantity to the environment in a 24-hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675):

Chemical Name	Wt. %	CERCLA RQ
4,4'-Diphenylmethane diisocyanate	40 - 60	5,000 lbs.

**TSCA (TOXIC SUBSTANCE CONTROL ACT)**

**TSCA STATUS:** This product or its components are listed in or exempt from the TSCA inventory requirements.

**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)**

**29 CFR1910.119---PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS:** None of the chemicals in this product are considered highly hazardous by OSHA.

**CALIFORNIA PROPOSITION 65:** This product contains chemical(s) which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

None

**OSHA HAZARD COMM. RULE:** The contents of the MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

**CANADA****WHMIS HAZARD SYMBOL AND CLASSIFICATION**

Toxic

Class D-1A: Poisonous and infectious material (Very toxic).

Class D-2A: Poisonous and infectious material (Very toxic).

Class D-2B: Poisonous and infectious material (Toxic).

**WHMIS HEALTH EFFECTS CRITERIA**

D1A - Acute lethality

D2A - Respiratory tract sensitization

D2B - Skin irritation

D2B - Skin Sensitization

**WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**WHMIS CLASS:** The D1A classification applies for this material in aerosol or mist form.

**DOMESTIC SUBSTANCE LIST (INVENTORY):** All components in this product are included on the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL).

**EUROPEAN COMMUNITY**

**TC-284 PART A****EEC LABEL SYMBOL AND CLASSIFICATION**

"Xn" - Harmful

**RISK PHRASES**

R20: Harmful by inhalation.

R36/37/38: Irritating to eyes, respiratory system and skin.

R42/43: May cause sensitization by inhalation and skin contact.

R48/20: Harmful : danger of serious damage to health by prolonged exposure through inhalation.

**SAFETY PHRASES**

S1/2: Keep locked up and out of reach of children.

S23: Do not breathe fumes/vapour/spray.

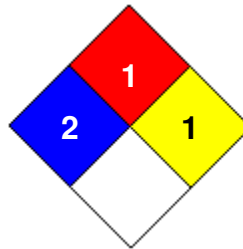
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37: Wear suitable protective clothing and gloves.

S45: In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

**16. OTHER INFORMATION****REASON FOR ISSUE:** New Issue**HMIS RATING**

<b>HEALTH</b>	*	<b>2</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>1</b>
<b>PERSONAL PROTECTION</b>	<b>X</b>	

**NFPA CODES****HMIS RATINGS NOTES:** Personal Protection: See Section 8

**MANUFACTURER DISCLAIMER:** This information is furnished without warranty, expressed or implied, except that is accurate to the best knowledge of BJB Enterprises, Inc. The data on this sheet relates only to the specific material designated herein. BJB Enterprises, Inc. assumes no legal responsibility for use or reliance upon this data.

## SAFETY DATA SHEET



Date Issued : 4/4/2013  
MSDS No : TC-284 PART B

## TC-284 PART B

## 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** TC-284 PART B  
**GENERAL USE:** Polyurethane curative  
**CHEMICAL FAMILY:** Polymer/polyether polyol

**MANUFACTURER**

BJB Enterprises, Inc.  
14791 Franklin Avenue  
Tustin, CA 92780

**Customer Service Number:** (714) 734-8450

**Fax:** (714) 734-8929

**24 HR. EMERGENCY TELEPHONE NUMBERS**

**CHEMTREC (US Transportation):** (800) 424-9300  
or (703) 527-3887

## 2. HAZARDS IDENTIFICATION

**HAZARD DESIGNATION**

"Xn" - Harmful

R22: Harmful if swallowed.

R38: Irritating to skin.



R41: Risk of serious damage to eyes.

**GHS CLASSIFICATIONS****Health**

Serious Eye Damage, Category 1

Target Organ Toxicity (Repeated exposure), Category 2

**GHS LABEL**

 Corrosion	 Health hazard
DANGER	WARNING
H318: Causes serious eye damage.	H373: May cause damage to organs through prolonged or repeated exposure .

**PRECAUTIONARY STATEMENT(S)****Prevention:**

P260: Do not breathe dust/fume/gas/mist/vapours/spray.

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

**Response:**

P314: Get medical advice/attention if you feel unwell.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310: Immediately call a POISON CENTER or doctor/physician.

P302+P352: IF ON SKIN: Wash with plenty of soap and water.

P332+P313: If skin irritation occurs: Get medical advice/attention.

P301+P310: IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

P304+P340: IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing.



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P342+P311: If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.

**Disposal:**

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

**EMERGENCY OVERVIEW**

**PHYSICAL APPEARANCE AND ODOR:** Off white liquid with a slight amine odor.

**IMMEDIATE CONCERNS:** May be harmful if swallowed. Severely irritating to eyes. May cause skin irritation. Avoid eye and skin contact. Avoid breathing vapors. Use in well ventilated areas.

**POTENTIAL HEALTH EFFECTS**

**EYES:** Severely irritating to the eyes.

**SKIN:** May cause skin irritation.

**INGESTION:** May be harmful if swallowed.

**INHALATION:** May result in respiratory irritation.

**MEDICAL CONDITIONS AGGRAVATED:** May cause or aggravate dermatitis and asthma.

**ROUTES OF ENTRY:** Eye and skin contact, inhalation of vapors, or accidental ingestion.

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	Wt.%	CAS	EINECS
Polyether polyol mixture	> 90	Proprietary	Proprietary
Ethanol, 2, 2'-iminobis-	< 5	111-42-2	203-868-0
Amine catalyst mixture	< 2	Proprietary	Proprietary

**4. FIRST AID MEASURES**

**EYES:** Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Consult a physician.

**SKIN:** Immediately wash skin with soap and plenty of water. Remove contaminated clothing. Get medical attention if symptoms occur. Wash clothing before reuse.

**INGESTION:** If swallowed, call a physician immediately. Do not induce vomiting unless directed to do so by medical personnel. Provided the patient is conscious, wash out mouth with water. Never give anything by mouth to an unconscious person.

**INHALATION:** Remove to fresh air. If not breathing, give artificial respiration or give oxygen by trained personnel. Seek immediate medical attention.

**NOTES TO PHYSICIAN:** Symptomatic and supportive therapy as needed. Following severe exposure medical follow-up should be monitored for at least 48 hours.

**5. FIRE FIGHTING MEASURES**

**EXTINGUISHING MEDIA:** Water spray, carbon dioxide, dry chemical, or foam.

**FIRE FIGHTING PROCEDURES:** Cool fire exposed containers with water spray. Remove containers from the fire area if possible. Do not release runoff from fire control methods to sewers or waterways.

**FIRE FIGHTING EQUIPMENT:** Firefighters should wear positive pressure self-contained breathing apparatus (SCBA) and consider use of unmanned hose holders or monitor nozzles for fighting large fires.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, and nitrogen oxides.

**6. ACCIDENTAL RELEASE MEASURES**

**SMALL SPILL:** Evacuate the area. Clean-up should only be performed by trained personnel. People dealing with a major spill should wear full protective clothing including appropriate respiratory protection. Prevent product spill from entering sewers or waterways. Neutralize small spills with a decontaminant.

**LARGE SPILL:** Contain and absorb large spills onto an inert, non-flammable adsorbent carrier (such as earth or sand). Shovel into open-top drums or plastic bags for further decontamination, if necessary. Wash the spill area clean with a liquid decontaminant. Remove and properly dispose of residues. Notify applicable government authorities if release is reportable. (See CERCLA in Section 15).

**RELEASE NOTES:** US regulations require reporting spills of this material that could reach any surface waters. The toll free number for the

**TC-284 PART B**

US Coast Guard National Response Center is (800) 424-8802.

**7. HANDLING AND STORAGE**

**GENERAL PROCEDURES:** Avoid contact with eyes, skin and clothing. Use only with adequate ventilation. Avoid breathing vapor over open containers. Avoid open container exposure to damp air. Avoid breathing aerosols, mists, and vapors.

**HANDLING:** Use appropriate personal protective equipment as specified in Section 8. Handle in a well ventilated area. Handle and use in a manner consistent with good industrial/manufacturing techniques and practices.

**STORAGE:** Store in a cool, dry place, away from excessive heat, in original or similar container. Avoid unnecessary contact. Protect from freezing. Containers should be tightly sealed to prevent contamination with foreign materials.

**SHELF LIFE:** 6 months from date of shipment under manufacturers recommended storage conditions.

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

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)							
		EXPOSURE LIMITS					
		OSHA PEL		ACGIH TLV		SupplierOEL	
Chemical Name		ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>	ppm	mg/m <sup>3</sup>
Polyether polyol mixture	TWA	NE	NE	NE	NE	NE	NE
	STEL	NE	NE	NE	NE	NE	NE
Ethanol, 2, 2'-iminobis-	TWA	NE	NE	NE	NE	3 <sup>[1]</sup>	15 <sup>[1]</sup>
	STEL	NE	NE	NE	NE	NE	NE
Amine catalyst mixture	TWA	NE	NE	NE	NE	NE	NE
	STEL	NE	NE	NE	NE	NE	NE

**OSHA TABLE COMMENTS:**  
1. NIOSH REL

**ENGINEERING CONTROLS:** Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits.

**PERSONAL PROTECTIVE EQUIPMENT**

**EYES AND FACE:** Safety goggles or glasses are recommended. Plastic face shields should be used for complete face protection to protect against possible splashing or spraying of material. ANSI Z87.1 or approved equivalent.

**SKIN:** Chemical-resistant gloves and chemical goggles, face-shield, and synthetic apron or coveralls should be used to prevent contact with eyes, skin, or clothing. Wear nitrile or neoprene gloves. Chemical resistant gloves lined with polyethylene offer maximum protection.

**RESPIRATORY:** Exhaust ventilation recommended. An organic vapor cartridge or fresh air supplied respirator (NIOSH approved) may be necessary for certain applications. Consider the type of application, environmental concentrations, and other materials being used concurrently when determining respirator use and selection. Observe OSHA regulations for respirator use (29 CFR 1910.134).

**PROTECTIVE CLOTHING:** Protective clothing should be selected and used in accordance with 'Guidelines for the Selection of Chemical Protective Clothing' published by ACGIH.

**WORK HYGIENIC PRACTICES:** Contaminated clothing should be changed and washed before reuse. Eating, drinking and smoking in immediate work area should be prohibited. Wash hands before eating.

**OTHER USE PRECAUTIONS:** Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Training is important. Follow all label precautions.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL STATE:** Liquid

**ODOR:** Slight amine

**COLOR:** Off-white

**PERCENT VOLATILE:** Nil

**TC-284 PART B****FLASHPOINT AND METHOD:** > 176.7°C (350°F)**VAPOR PRESSURE:** Not Established**VAPOR DENSITY:** Not Established**BOILING POINT:** Not Established**SOLUBILITY IN WATER:** Slightly soluble**SPECIFIC GRAVITY:** 1.04 (water=1) at 25°C (77°F)**VISCOSITY:** 1915 Centipoise at 25°C (77°F)**VOC (Volatile Organic Compound):** Nil Calculated. Theoretical VOC minus water and exempt solvents.**10. STABILITY AND REACTIVITY****STABILITY:** This product is stable under normal ambient conditions of temperature and pressure.**POLYMERIZATION:** Product will not undergo polymerization.**CONDITIONS TO AVOID:** High temperatures, moisture, and freezing conditions.**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide, and nitrogen oxides.**INCOMPATIBLE MATERIALS:** Isocyanates, oxidizing agents, and strong mineral acids.**11. TOXICOLOGICAL INFORMATION****TOXICITY TO ANIMALS**

Chemical Name	ORAL LD <sub>50</sub> (rat)	DERMAL LD <sub>50</sub> (rabbit)	INHALATION LC <sub>50</sub> (rat)
Polyether polyol mixture	Not Established	Not Established	Not Established
Ethanol, 2, 2'-iminobis-	700 to 2800 mg/kg	> 5000 mg/kg	Not Established
Amine catalyst mixture	Not Established	Not Established	Not Established

**EYE EFFECTS:** Severe eye irritation.**CARCINOGENICITY**

Chemical Name	IARC Status
Ethanol, 2, 2'-iminobis-	3

**IARC:** This product contains substances that are not classifiable as carcinogens to humans.**12. ECOLOGICAL INFORMATION****ECOTOXICOLOGICAL INFORMATION:** No specific ecological data are available for this product. Refer to Section 6 for information regarding accidental release and Section 15 for regulatory reporting information.**13. DISPOSAL CONSIDERATIONS****DISPOSAL METHOD:** The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protections and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.**14. TRANSPORT INFORMATION****DOT (DEPARTMENT OF TRANSPORTATION) LAND****NOTE:** Not Regulated**AIR (ICAO/IATA):** Not Regulated**VESSEL (IMO/IMDG):** Not Regulated

## TC-284 PART B

## 15. REGULATORY INFORMATION

## UNITED STATES

## SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

**311/312 HAZARD CATEGORIES:** Acute health hazard. Chronic health hazard

**313 REPORTABLE INGREDIENTS:** This product contains the following substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372:

## EPCRA SECTION 313 SUPPLIER NOTIFICATION

Chemical Name	Wt. %	CAS
Ethanol, 2, 2'-iminobis-	< 5	111-42-2

## CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)

**CERCLA REGULATORY:** For this/these chemicals, release of more than the Reportable Quantity to the environment in a 24-hour period requires notification to the National Response Center (800-424-8802 or 202-426-2675):

Chemical Name	Wt. %	CERCLA RQ
Ethanol, 2, 2'-iminobis-	< 5	100 lbs.

## TSCA (TOXIC SUBSTANCE CONTROL ACT)

**TSCA STATUS:** This product or its components are listed in or exempt from the TSCA inventory requirements.

## OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

**29 CFR1910.119---PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS:** None of the chemicals in this product are considered highly hazardous by OSHA.

**CALIFORNIA PROPOSITION 65:** This product contains chemical(s) which are known to the State of California to cause cancer, birth defects or other reproductive harm, and may be subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Wt. %	Listed
Ethanol, 2, 2'-iminobis-	< 5	Cancer

**OSHA HAZARD COMM. RULE:** The contents of the MSDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.

## CANADA

## WHMIS HAZARD SYMBOL AND CLASSIFICATION



Toxic  
Class D-2A: Poisonous and infectious material (Very toxic).  
Class D-2B: Poisonous and infectious material (Toxic).

## WHMIS HEALTH EFFECTS CRITERIA

D2A - Carcinogenicity  
D2B - Eye irritation  
D2B - Skin irritation

**WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

**DOMESTIC SUBSTANCE LIST (INVENTORY):** All components in this product are included on the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL).

## EUROPEAN COMMUNITY

**TC-284 PART B****EEC LABEL SYMBOL AND CLASSIFICATION**

"Xn" - Harmful

**RISK PHRASES**

R22: Harmful if swallowed.

R38: Irritating to skin.

R41: Risk of serious damage to eyes.

**SAFETY PHRASES**

S2: Keep out of the reach of children.

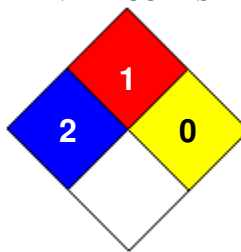
S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S36/37/39: Wear suitable protective clothing, gloves and eye/face protection.

S46: If swallowed, seek medical advice immediately and show this container or label.

**16. OTHER INFORMATION****REASON FOR ISSUE:** New Issue**HMIS RATING**

<b>HEALTH</b>	*	<b>2</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>
<b>PERSONAL PROTECTION</b>		<b>X</b>

**NFPA CODES****HMIS RATINGS NOTES:** Personal Protection: See Section 8

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