

# SAFETY DATA SHEET



Date Prepared : 03/25/2013  
 SDS No : TC-1601 PART B  
 Date Revised : 09/07/2016  
 Revision No : 1

## TC-1601 PART B

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** TC-1601 PART B  
**GENERAL USE:** Epoxy curing agent

#### MANUFACTURER

BJB Enterprises, Inc.  
 14791 Franklin Avenue  
 Tustin, CA 92780  
**Emergency Phone:** (714) 734-8450

#### 24 HR. EMERGENCY TELEPHONE NUMBERS

**CHEMTREC (USA & Canada):** (800) 424-9300  
 or (703) 527-3887 CCN# 2820

### 2. HAZARDS IDENTIFICATION

#### GHS CLASSIFICATIONS

##### Health:

Acute Toxicity (Oral), Category 4  
 Acute Toxicity (Dermal), Category 3  
 Acute Toxicity (Inhalation), Category 2  
 Skin Corrosion, Category 1  
 Serious Eye Damage, Category 1  
 Respiratory Sensitization, Category 1  
 Skin Sensitization, Category 1  
 Reproductive Toxicity, Category 2  
 Target Organ Toxicity (Repeated exposure), Category 2

##### Environmental:

Acute Hazards to the Aquatic Environment, Category 2  
 Chronic Hazards to the Aquatic Environment, Category 2

#### GHS LABEL



Skull and crossbones



Corrosion



Health hazard



Environment

**SIGNAL WORD:** DANGER

#### HAZARD STATEMENTS

H302: Harmful if swallowed.  
 H311: Toxic in contact with skin.  
 H330: Fatal if inhaled.  
 H314: Causes severe skin burns and eye damage.  
 H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.  
 H317: May cause an allergic skin reaction.  
 H361: Suspected of damaging fertility or the unborn child.  
 H373: May cause damage to organs through prolonged or repeated exposure.  
 H411: Toxic to aquatic life with long lasting effects.

#### PRECAUTIONARY STATEMENTS

**TC-1601 PART B****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.  
 P271: Use only outdoors or in a well-ventilated area.  
 P284: [In case of inadequate ventilation] wear respiratory protection.  
 P264: Wash thoroughly after handling.  
 P270: Do not eat, drink or smoke when using this product.  
 P272: Contaminated work clothing should not be allowed out of the workplace.  
 P280: Wear protective gloves/protective clothing/eye protection/face protection.  
 P273: Avoid release to the environment.

**Response:**

- 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 [or shower].  
 P363: Wash contaminated clothing before reuse.  
 P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
 P310: Immediately call a POISON CENTER/doctor/physician.  
 P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.  
 Continue rinsing.  
 P391: Collect spillage.

**Storage:**

- P403+P233: Store in a well-ventilated place. Keep container tightly closed.  
 P405: Store locked up.

**Disposal:**

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

**3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	Wt.%	CAS
Cyclohexanamine, 4,4'-methylenebis[2-methyl-	15 - 40	6864-37-5
Tetraethylenepentamine	10 - 30	112-57-2
Diethyltoluenediamine (DETDA)	7 - 13	68479-98-1
Methylenebis(cyclohexanamine, 4,4'-	5 - 10	1761-71-3
2-Ethyl-4-methylimidazole	5 - 10	931-36-2
Diethylenetriamine (DETA)	1 - 5	111-40-0
4,4'-Isopropylidenediphenol	1 - 5	80-05-7
Formaldehyde, Polymer with Benzeneamine, Hydrogenated	1 - 5	135108-88-2
1,2-Cyclohexanediamine	1 - 5	694-83-7
1,3-Cyclohexanedimethanamine	1 - 5	2579-20-6
1h-imidazole, 5-methyl-	0.1 - 1	822-36-6

**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. Get immediate medical attention.

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

**INGESTION:** If swallowed, call a physician immediately. DO NOT induce vomiting. Provided the patient is conscious, wash out mouth with

**TC-1601 PART B**

water. Never give anything by mouth to an unconscious person.

**INHALATION:** Remove to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Get 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 alcohol-resistant foam.

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

**FIRE FIGHTING PROCEDURES:** 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.

**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).

**ENVIRONMENTAL PRECAUTIONS**

**WATER SPILL:** Do not discharge into drains or rivers.

**GENERAL PROCEDURES:** Refer to section 8 of SDS for personal protection details.

**RELEASE NOTES:** Composition and extent of any spill should be evaluated against local regulations and reported to the proper agencies, if necessary.

**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 dry and well-ventilated 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.

**STORAGE TEMPERATURE:** 65-80°F (18-27°C)

**SHELF LIFE:** 12 months from date of shipment under manufacturers recommended storage conditions.

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

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)				
Chemical Name	EXPOSURE LIMITS			
	Type	ppm	mg/m <sup>3</sup>	
Cyclohexanamine, 4,4'-methylenebis[2-methyl-	OSHA PEL	TWA	NE	NE
		STEL	NE	NE
	ACGIH TLV	TWA	NE	NE
		STEL	NE	NE

## TC-1601 PART B

	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
Tetraethylenepentamine	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
Diethyltoluenediamine (DETDA)	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
Methylenebiscyclohexanamine, 4,4'-	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
2-Ethyl-4-methylimidazole	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
Diethylenetriamine (DETA)	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	1	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	1 <sup>[1]</sup>	4 <sup>[1]</sup>
		<b>STEL</b>	NE	NE
4,4'-Isopropylidenediphenol	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE

**TC-1601 PART B**

	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
Formaldehyde, Polymer with Benzeneamine, Hydrogenated	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
1,2-Cyclohexanediamine	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
1,3-Cyclohexanedimethanamine	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
1h-imidazole, 5-methyl-	<b>OSHA PEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>ACGIH TLV</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
	<b>Supplier OEL</b>	<b>TWA</b>	NE	NE
		<b>STEL</b>	NE	NE
<b>Footnotes:</b>				
1. NIOSH REL (skin)				

**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.

**TC-1601 PART B**

**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:** Ammoniacal

**COLOR:** Amber

**pH:** Alkaline

**PERCENT VOLATILE:** 0.03

**FLASH POINT AND METHOD:** 107.2°C (225°F) Closed Cup

**VAPOR PRESSURE:** Not Established

**VAPOR DENSITY:** Not Established

**BOILING POINT:** Not Established

**SOLUBILITY IN WATER:** Partially soluble

**SPECIFIC GRAVITY:** 0.98 (water=1) at 25°C (77°F)

**VISCOSITY #1:** 185 Centipoise at 25°C (77°F)

**(VOC):** < 0.3 g/l Calculated. Theoretical VOC minus water and exempt solvents.

**10. STABILITY AND REACTIVITY**

**REACTIVITY:** Hazardous reactions will not occur under normal transport or storage conditions.

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

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

**POSSIBILITY OF HAZARDOUS REACTIONS:** No data available.

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

**INCOMPATIBLE MATERIALS:** Strong oxidizing agents, strong acids, acid chlorides, and acid anhydrides.

**11. TOXICOLOGICAL INFORMATION****ACUTE TOXICITY**

Chemical Name	ORAL LD <sub>50</sub>	DERMAL LD <sub>50</sub>	INHALATION LC <sub>50</sub>
Cyclohexanamine, 4,4'-methylenebis[2-methyl-	> 320 mg/kg	> 200 mg/kg	0.42 mg/l (4 h)
Tetraethylenepentamine	2140 mg/kg	> 660 mg/kg	Not Established
Diethyltoluenediamine (DETDA)	738 mg/kg	> 2000 mg/kg	Not Established
Methylenebiscyclohexanamine, 4,4'-	625 mg/kg	2110 mg/kg	Not Established
2-Ethyl-4-methylimidazole	1000 mg/kg	> 400 mg/kg	Not Established
Diethylenetriamine (DETA)	Not Established	Not Established	> 0.07 mg/l (4 h)
4,4'-Isopropylidenediphenol	> 2000 mg/kg	> 2000 mg/kg	Not Established
Formaldehyde, Polymer with Benzeneamine, Hydrogenated	Not Established	Not Established	Not Established
1,2-Cyclohexanediamine	Not Established	Not Established	Not Established
1,3-Cyclohexanedimethanamine	700 mg/kg	1700 mg/kg	Not Established
1h-imidazole, 5-methyl-	Not Established	Not Established	Not Established

**TC-1601 PART B**

**SKIN CORROSION/IRRITATION:** Causes severe skin burns.

**SERIOUS EYE DAMAGE/IRRITATION:** Causes serious eye damage.

**RESPIRATORY OR SKIN SENSITISATION:** May cause sensitization by inhalation and skin contact.

**GERM CELL MUTAGENICITY:** No data available.

**CARCINOGENICITY**

Chemical Name	IARC Status
1h-imidazole, 5-methyl-	2B

**REPRODUCTIVE TOXICITY:** Suspected of damaging fertility or the unborn child.

**STOT-SINGLE EXPOSURE:** No data available.

**STOT-REPEATED EXPOSURE:** Causes damage to organs through prolonged or repeated exposure.

**ASPIRATION HAZARD:** No data available.

**12. ECOLOGICAL INFORMATION**

**ENVIRONMENTAL DATA:** This product may cause risk of hazardous effects to the environment.

**ECOTOXICOLOGICAL INFORMATION:** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.  
Avoid release to the environment.

**BIOACCUMULATION/ACCUMULATION:** No data available.

**DISTRIBUTION:** No data available.

**AQUATIC TOXICITY (ACUTE):** No data available.

**CHEMICAL FATE INFORMATION:** No data available.

**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)**

**PROPER SHIPPING NAME:** Corrosive liquids, n.o.s.

**TECHNICAL NAME:** (tetraethylenepentamine solution)

**PRIMARY HAZARD CLASS/DIVISION:** 8

**UN/NA NUMBER:** UN1760

**PACKING GROUP:** III

**NAERG:** 154

**LABEL:** Corrosive

**AIR (ICAO/IATA)**

**SHIPPING NAME:** Corrosive liquid, n.o.s.

**TECHNICAL NAME:** (tetraethylenepentamine solution)

**UN/NA NUMBER:** UN1760

**PRIMARY HAZARD CLASS/DIVISION:** 8

**PACKING GROUP:** III

**ERG:** 8L

**LABEL:** Corrosive

**TC-1601 PART B****VESSEL (IMO/IMDG)****SHIPPING NAME:** Corrosive liquid, n.o.s.**TECHNICAL NAME:** (tetraethylenepentamine solution)**UN/NA NUMBER:** UN1760**PRIMARY HAZARD CLASS/DIVISION:** 8**PACKING GROUP:** III**EmS:** F-A, S-B**MARINE POLLUTANT #1:** Yes**LABEL:** Corrosive**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
4,4'-Isopropylidenediphenol	1 - 5	80-05-7

**CERCLA (COMPREHENSIVE ENVIRONMENTAL 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):  
None**TSCA (TOXIC SUBSTANCE CONTROL ACT)****TSCA REGULATORY:** This product contains diethyltoluenediamine (DETDA) (CAS No: 68479-98-1) which is subject to TSCA 12(b), Section 4 export notification.**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):

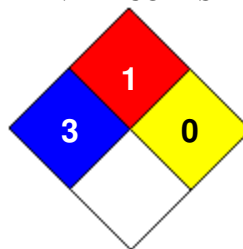
Chemical Name	Wt.%	Listed
4,4'-Isopropylidenediphenol	1 - 5	Female Reproductive
1h-imidazole, 5-methyl-	0.1 - 1	Cancer

**OSHA HAZARD COMM. RULE:** The contents of the SDS comply with the OSHA Hazard Communication Standard 29 CFR 1910.1200.**CANADA****WHMIS (WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM):** This product has been classified according to the hazard criteria of the CPR and the SDS contains all the information required by the CPR.**DOMESTIC SUBSTANCE LIST (INVENTORY):** All components in this product are listed in or exempted from the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL).**GENERAL COMMENTS:** No data available.**16. OTHER INFORMATION**



**TC-1601 PART B****REASON FOR ISSUE:** Revision**Date Revised:** 09/07/2016**REVISION SUMMARY:** This SDS replaces the 03/25/2013 SDS.**HMIS RATING**

<b>HEALTH</b>	*	<b>3</b>
<b>FLAMMABILITY</b>		<b>1</b>
<b>PHYSICAL HAZARD</b>		<b>0</b>
<b>PERSONAL PROTECTION</b>	X	

**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.