

**1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING****Product identifier**

**Product Name** EpoxiCure 2 Hardener  
**Product Code(s)** 20-3432-016, 20-3432-032  
**(M)SDS Number** 1350313\_A

**Other means of identification**

**UN-No.** UN2735  
**Synonyms** None

**Recommended use of the chemical and restrictions on use**

**Recommended Use** Laboratory Use Only  
**Uses advised against** No information available

**Details of the supplier of the safety data sheet**

**Manufacturer** Buehler  
**Manufacturer Address** 41 Waukegan Rd  
Lake Bluff, IL 60044  
www.buehler.com  
**Phone number** +1 847 295 6500  
**E-mail Address** custserv@buehler.com

**Emergency telephone number**


Global Access Code: 334545  
Americas: +1 760 476 3962 Asia Pacific: +1 760 476 3960  
Middle East/Africa: +1 760 476 3959 Europe: +1 760 476 3961

**2. HAZARDS IDENTIFICATION****Classification**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Acute toxicity - Oral	Category 4
Acute toxicity - Dermal	Category 4
Skin corrosion/irritation	Category 1 Sub-category B
Serious eye damage/eye irritation	Category 1
Skin sensitization	Category 1

**GHS Label elements, including precautionary statements****Emergency Overview**

<b>Signal word</b>	<b>Danger</b>	
<b>Hazard Statements</b> Harmful if swallowed Harmful in contact with skin Causes severe skin burns and eye damage May cause an allergic skin reaction Toxic to aquatic life with long lasting effects		
		
<b>Appearance</b>	Clear to yellow	<b>Physical state</b> Liquid
		<b>Odor</b> Characteristic

**Precautionary Statements - Prevention**

Wash face, hands and any exposed skin thoroughly after handling  
 Do not eat, drink or smoke when using this product  
 Wear protective gloves/protective clothing/eye protection/face protection  
 Do not breathe dust/fume/gas/mist/vapors/spray

**Precautionary Statements - Response**

None

**Eyes**

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 or doctor/physician

**Skin**

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower  
 Call a POISON CENTER or doctor/physician if you feel unwell

**Inhalation**

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing  
 Call a POISON CENTER or doctor/physician if you feel unwell

**Ingestion**

IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 Rinse mouth  
 Do NOT induce vomiting

**Precautionary Statements - Storage**

Store locked up

**Precautionary Statements - Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Not applicable

**Other information**

No information available

**Interactions with Other Chemicals**

No information available.

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical name	CAS No.	Weight-%	Trade Secret
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro-.omega.-(2-aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)	39423-51-3	30 - 50%	*
Triethylene tetramine	112-24-3	10 - 30%	*
Diethylene triamine	111-40-0	10 - 30%	*

\*The exact percentage (concentration) of composition has been withheld as a trade secret

### 4. FIRST AID MEASURES

**First aid measures**

**General Advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

**Eye contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Keep eye wide open while rinsing. Do not rub affected area. Remove contact lenses, if present and easy to do. Continue rinsing. Seek immediate medical attention/advice.

**Skin contact**

Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Seek immediate medical attention/advice. May cause an allergic skin reaction.

**Inhalation**

Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, (trained personnel should) give oxygen. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Ingestion**

Do NOT induce vomiting. Rinse mouth immediately and drink plenty of water. Never give anything by mouth to an unconscious person. Call a physician or Poison Control Center immediately.

**Self-protection of the first aider**

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination. Avoid direct contact with skin. Use barrier to give mouth-to-mouth resuscitation.

**Most important symptoms and effects, both acute and delayed**

**Most Important Symptoms and Effects**

Burning. Burning sensation. Itching. Rashes. Hives.

**Indication of any immediate medical attention and special treatment needed**

**Notes to Physician**

Effects of exposure (inhalation, ingestion or skin contact) to substance may be delayed.

## 5. FIRE-FIGHTING MEASURES

**Suitable Extinguishing Media**

Move containers from fire area if you can do it without risk. Dike fire control water for later disposal; do not scatter the material. Dry chemical, CO<sub>2</sub>, alcohol-resistant foam or water spray. Dry chemical. Carbon dioxide (CO<sub>2</sub>). Water spray. Alcohol resistant foam.

**Unsuitable extinguishing media**

CAUTION: Use of water spray when fighting fire may be inefficient.

**Specific hazards arising from the chemical**

When heated, vapors may form explosive mixtures with air: indoors, outdoors and sewers explosion hazards. Runoff may pollute waterways. Substance may be transported in a molten form.

**Uniform Fire Code**

Corrosive: Other--Liquid  
Sensitizer: Liquid

**Explosion Data**

**Sensitivity to Mechanical Impact** None.

**Sensitivity to Static Discharge** None.

**Protective equipment and precautions for firefighters**

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## 6. ACCIDENTAL RELEASE MEASURES

**Personal precautions, protective equipment and emergency procedures****Personal precautions**

ELIMINATE all ignition sources (no smoking, flares, sparks or flames in immediate area). Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Stop leak if you can do it without risk.

**Other Information**

Do not get water inside containers.

**Environmental precautions****Environmental precautions**

Prevent entry into waterways, sewers, basements or confined areas.

**Methods and material for containment and cleaning up****Methods for containment**

Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers.

**Methods for cleaning up**

Soak up with inert absorbent material. Pick up and transfer to properly labeled containers.

## 7. HANDLING AND STORAGE

### Precautions for safe handling

**Handling** Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes or clothing. In case of insufficient ventilation, wear suitable respiratory equipment. Use only with adequate ventilation and in closed systems. Do not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse.

### Conditions for safe storage, including any incompatibilities

**Storage** Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture. Store locked up. Keep out of the reach of children. Store away from other materials.

**Incompatible Products** Acids. Bases. Oxidizing agent.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters

**Exposure Guidelines** The following ingredients are the only ingredients of the product above the cut-off level (or level that contributes to the hazard classification of the mixture) which have an exposure limit applicable in the region for which this safety data sheet is intended or other recommended limit. At this time, the other relevant constituents have no known exposure limits from the sources listed here

Chemical name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Diethylene triamine 111-40-0	TWA: 1 ppm S*	(vacated) TWA: 1 ppm (vacated) TWA: 4 mg/m <sup>3</sup>	TWA: 1 ppm TWA: 4 mg/m <sup>3</sup>

*ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits NIOSH IDLH Immediately Dangerous to Life or Health*

**Other Exposure Guidelines** Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992)

### Appropriate engineering controls

**Engineering Measures** Showers  
Eyewash stations  
Ventilation systems

### Individual protection measures, such as personal protective equipment

**Eye/face protection** Face protection shield.

**Skin and body protection** Wear protective gloves and protective clothing. Long sleeved clothing. Chemical resistant apron. Impervious gloves.

**Respiratory protection** If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

**Hygiene Measures** Avoid contact with skin, eyes or clothing. Wear suitable gloves and eye/face protection. Do

not eat, drink or smoke when using this product. Take off contaminated clothing and wash before reuse. Contaminated work clothing should not be allowed out of the workplace. Regular cleaning of equipment, work area and clothing is recommended. Wash hands before breaks and immediately after handling the product. Take off contaminated clothing and wash before reuse.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

### Physical and Chemical Properties

<b>Physical state</b>	Liquid	<b>Odor</b>	Characteristic
<b>Appearance</b>	Clear to yellow	<b>Odor Threshold</b>	No information available
<b>Color</b>	No information available		

<u>Property</u>	<u>Values</u>	<u>Remarks</u>	<u>Method</u>
<b>pH</b>	No data available		
<b>Melting / freezing point</b>	No data available	None known	
<b>Boiling point / boiling range</b>	No data available	None known	
<b>Flash Point</b>	100 °C / 212 F		
<b>Evaporation Rate</b>	No data available	None known	
<b>Flammability (solid, gas)</b>	No data available	None known	
<b>Flammability Limit in Air</b>			
<b>Upper flammability limit</b>	No data available		
<b>Lower flammability limit</b>	No data available		
<b>Vapor pressure</b>	No data available	None known	
<b>Vapor density</b>	No data available	None known	
<b>Specific Gravity</b>	1.03		
<b>Water Solubility</b>	Soluble in water		
<b>Solubility in other solvents</b>	No data available	None known	
<b>Partition coefficient: n-octanol/water</b>	No data available	None known	
<b>Autoignition temperature</b>	No data available	None known	
<b>Decomposition temperature</b>	No data available	None known	
<b>Kinematic viscosity</b>	No data available	None known	
<b>Dynamic viscosity</b>	No data available	None known	
<b>Explosive properties</b>	No data available		
<b>Oxidizing properties</b>	No data available		

### Other Information

<b>Softening Point</b>	No data available
<b>VOC Content (%)</b>	No data available
<b>Particle Size</b>	No data available
<b>Particle Size Distribution</b>	

## 10. STABILITY AND REACTIVITY

### Reactivity

No data available.

### Chemical stability

Stable under recommended storage conditions.

### Possibility of Hazardous Reactions

None under normal processing.

### Conditions to avoid

Exposure to air or moisture over prolonged periods.

### Incompatible materials

Acids. Bases. Oxidizing agent.

### Hazardous Decomposition Products

None known based on information supplied.

## 11. TOXICOLOGICAL INFORMATION

### Information on likely routes of exposure

#### Product Information

##### **Inhalation**

Specific test data for the substance or mixture is not available. Corrosive by inhalation. (based on components). Inhalation of corrosive fumes/gases may cause coughing, choking, headache, dizziness, and weakness for several hours. Pulmonary edema may occur with tightness in the chest, shortness of breath, bluish skin, decreased blood pressure, and increased heart rate. Inhaled corrosive substances can lead to a toxic edema of the lungs. Pulmonary edema can be fatal. May cause irritation of respiratory tract.

##### **Eye contact**

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Corrosive to the eyes and may cause severe damage including blindness. Causes serious eye damage. May cause irreversible damage to eyes.

##### **Skin contact**

Specific test data for the substance or mixture is not available. Corrosive. (based on components). Causes burns. May be absorbed through the skin in harmful amounts. Harmful in contact with skin.

##### **Ingestion**

Specific test data for the substance or mixture is not available. Causes burns. (based on components). Ingestion causes burns of the upper digestive and respiratory tracts. May cause severe burning pain in the mouth and stomach with vomiting and diarrhea of dark blood. Blood pressure may decrease. Brownish or yellowish stains may be seen around the mouth. Swelling of the throat may cause shortness of breath and choking. May cause lung damage if swallowed. May be fatal if swallowed and enters airways. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Harmful if swallowed.

#### Component Information

Chemical name	Oral LD50	Dermal LD50	Inhalation LC50
Triethylene tetramine 112-24-3	= 2500 mg/kg ( Rat )	= 550 mg/kg ( Rabbit )	-
Diethylene triamine	= 1080 mg/kg ( Rat )	= 672 mg/kg ( Rabbit )	= 70 mg/L ( Rat ) 4 h

111-40-0			
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### Information on toxicological effects

**Symptoms** Erythema (skin redness). Burning. May cause blindness. Coughing and/ or wheezing. Itching. Rashes. Hives.

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

**Sensitization** May cause sensitization in susceptible persons. May cause sensitization by skin contact.

**Mutagenic Effects** No information available.

**Carcinogenicity** Contains no ingredient listed as a carcinogen.

**Reproductive toxicity** No information available.

**STOT - single exposure** No information available.

**STOT - repeated exposure** No information available.

**Chronic Toxicity** Chronic exposure to corrosive fumes/gases may cause erosion of the teeth followed by jaw necrosis. Bronchial irritation with chronic cough and frequent attacks of pneumonia are common. Gastrointestinal disturbances may also be seen.

**Target Organ Effects** Respiratory system. Eyes. Skin. Gastrointestinal tract (GI).

**Aspiration Hazard** No information available.

### Numerical measures of toxicity Product Information

The following values are calculated based on chapter 3.1 of the GHS document

**ATEmix (oral)**

1,793.00 mg/kg

**ATEmix (dermal)**

1,100.00 mg/kg (ATE)

**ATEmix (inhalation-dust/mist)**

233.00 mg/L



## 12. ECOLOGICAL INFORMATION

### Ecotoxicity

Toxic to aquatic life with long lasting effects.

Chemical name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Triethylene tetramine 112-24-3	72h EC50: = 2.5 mg/L (Desmodesmus subspicatus) 96h EC50: = 3.7 mg/L (Pseudokirchneriella subcapitata) 72h EC50: = 20 mg/L (Pseudokirchneriella subcapitata)	96h LC50: = 570 mg/L (Poecilia reticulata) 96h LC50: = 495 mg/L (Pimephales promelas)		48h EC50: = 31.1 mg/L
Diethylene triamine 111-40-0	72h EC50: = 1164 mg/L (Pseudokirchneriella subcapitata) 96h EC50: = 345.6 mg/L (Pseudokirchneriella subcapitata) 96h EC50: = 592 mg/L (Desmodesmus subspicatus)	96h LC50: = 430 mg/L (Leuciscus idus) 96h LC50: = 1014 mg/L (Poecilia reticulata) 96h LC50: = 248 mg/L (Poecilia reticulata)	EC50 = 2000 mg/L 1 h EC50 = 96 mg/L 17 h	24h EC50: = 37 mg/L 48h EC50: = 16 mg/L

### Persistence and Degradability

No information available.

### Bioaccumulation

Chemical name	Log Pow
Triethylene tetramine 112-24-3	-1.4
Diethylene triamine 111-40-0	-1.3

### Other adverse effects

No information available.

## 13. DISPOSAL CONSIDERATIONS

### Waste treatment methods

#### **Disposal methods**

This material, as supplied, is not a hazardous waste according to Federal regulations (40 CFR 261). This material could become a hazardous waste if it is mixed with or otherwise comes in contact with a hazardous waste, if chemical additions are made to this material, or if the material is processed or otherwise altered. Consult 40 CFR 261 to determine whether the altered material is a hazardous waste. Consult the appropriate state, regional, or local regulations for additional requirements.

#### **Contaminated Packaging**

Dispose of contents/containers in accordance with local regulations.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical name	California Hazardous Waste
Diethylene triamine 111-40-0	Toxic

## 14. TRANSPORT INFORMATION

**DOT**

**UN-No.** UN2735  
**Proper Shipping Name** POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing Group** III  
**Description** UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III  
**Emergency Response Guide Number** 153

**TDG**

**Proper Shipping Name** POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
**Description** UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**MEX**

**UN-No.** UN2735  
**Proper Shipping Name** POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing Group** III  
**Description** UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**ICAO**

**UN-No.** UN2735  
**Proper Shipping Name** AMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing Group** III  
**Description** UN2735, AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**IATA**

**UN-No.** UN2735  
**Proper Shipping Name** AMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing group** III  
**ERG Code** 8L  
**Description** UN2735, AMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**IMDG/IMO**

**UN-No.** UN2735  
**Proper Shipping Name** POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing group** III  
**EmS-No.** F-A, S-B  
**Description** UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**RID**

**UN-No.** UN2735  
**Proper Shipping Name** POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
**Hazard Class** 8  
**Packing Group** III  
**Classification code** C7  
**Description** UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

DIETHYLENE TRIAMINE), 8, III

**ADR**

<b>UN-No.</b>	UN2735
<b>Proper Shipping Name</b>	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b>Classification code</b>	C7
<b>Tunnel restriction code</b>	(E)
<b>Description</b>	UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III

**ADN**

<b>UN-No.</b>	UN2735
<b>Proper Shipping Name</b>	POLYAMINES, LIQUID, CORROSIVE, N.O.S.
<b>Hazard Class</b>	8
<b>Packing Group</b>	III
<b>Classification code</b>	C7
<b>Special Provisions</b>	274
<b>Description</b>	UN2735, POLYAMINES, LIQUID, CORROSIVE, N.O.S. (TRIETHYLENE TETRAMINE, DIETHYLENE TRIAMINE), 8, III
<b>Hazard Labels</b>	8
<b>Limited Quantity</b>	5 L

## 15. REGULATORY INFORMATION

**International Inventories**

TSCA	Complies
DSL	All components are listed either on the DSL or NDSL.
IECSC	

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory  
**DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List

**US Federal Regulations****SARA 313**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

**SARA 311/312 Hazard Categories**

<b>Acute Health Hazard</b>	Yes
<b>Chronic Health Hazard</b>	No
<b>Fire Hazard</b>	No
<b>Sudden release of pressure hazard</b>	No
<b>Reactive Hazard</b>	No

**CWA (Clean Water Act)**

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

**CERCLA**

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material

**US State Regulations**

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**U.S. State Right-to-Know Regulations**

Chemical name	New Jersey	Massachusetts	Pennsylvania	Rhode Island	Illinois
Triethylene tetramine 112-24-3	X	X	X		
Diethylene triamine 111-40-0	X	X	X		

**International Regulations**

**Mexico**

**National occupational exposure limits**

Component	Carcinogen Status	Exposure Limits
Diethylene triamine 111-40-0 ( 10 - 30% )		Mexico: TWA 1 ppm Mexico: TWA 4.2 mg/m <sup>3</sup>

Mexico - Occupational Exposure Limits - Carcinogens

**Canada**

**WHMIS Hazard Class**

Not determined

**16. OTHER INFORMATION**

<b>NFPA</b>	<b>Health Hazards</b> 3	<b>Flammability</b> 1	<b>Instability</b> 0	<b>Physical and Chemical Hazards - Personal Protection</b> X
<b>HMIS</b>	<b>Health Hazards</b> 3	<b>Flammability</b> 1	<b>Physical Hazard</b> 0	

**Prepared By** Product Stewardship  
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**Revision Date** 05-Aug-2019  
**Revision Note** No information available

**Disclaimer**

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text



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**End of Safety Data Sheet**