SAFETY DATA SHEET

Issuing Date 01-Mar-2017 **Revision Date** 01-Mar-2017 **Revision Number** 1

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
Middle East/Africa: +1 760 476 3959
Asia Pacific: +1 760 476 3960
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

Signal word **Danger**

Hazard Statements
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

Appearance Colorless to yellow **Physical state** Liquid **Odor** 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

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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, CO2, alcohol-resistant foam or water spray. Dry chemical. Carbon dioxide (CO2). 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 This product, as supplied, does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies

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^3	TWA: 1 ppm TWA: 4 mg/m^3

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

Physical state	Liquid		
Appearance	Colorless to yellow	**Odor**	Characteristic
Color	No information available	**Odor Threshold**	No information available

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

Other Information

Softening Point	No data available
VOC Content (%)	No data available
Particle Size	No data available
Particle Size Distribution	

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			

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

ADR

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

ADN

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

15. REGULATORY INFORMATION

International Inventories

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

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

Acute Health Hazard	Yes
Chronic Health Hazard	No
Fire Hazard	No
Sudden release of pressure hazard	No
Reactive Hazard	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

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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/m³

Mexico - Occupational Exposure Limits - Carcinogens

Canada
WHMIS Hazard Class
Not determined

16. OTHER INFORMATION

NFPA	**Health Hazards** 3	**Flammability** 1	**Instability** 0	**Physical and Chemical Hazards** -
HMIS	**Health Hazards** 3	**Flammability** 1	**Physical Hazard** 0	**Personal Protection** X

Prepared By
Product Stewardship
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Latham, NY 12110
1-800-572-6501

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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

End of Safety Data Sheet