

### SECTION 1: Identification

#### 1.1. Identification

Product form : Mixture  
Product name : Epoxicure 2 Hardener  
Product code : 20-3432-016, 20-3432-032

#### 1.2. Recommended use and restrictions on use

Use of the substance/mixture : Laboratory chemicals  
Recommended use : Laboratory chemicals  
Restrictions on use : None known

#### 1.3. Supplier

Buehler  
41 Waukegan Rd  
Lake Bluff, IL 60044  
T 1-847-295-6500  
[custserv@buehler.com](mailto:custserv@buehler.com)

#### 1.4. Emergency telephone number

Emergency 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

### SECTION 2: Hazard(s) identification

#### 2.1. Classification of the substance or mixture

##### GHS US classification

Acute toxicity (oral) Category 4	H302	Harmful if swallowed
Acute toxicity (dermal) Category 3	H311	Toxic in contact with skin
Skin corrosion/irritation Category 1B	H314	Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1	H318	Causes serious eye damage
Skin sensitization, Category 1	H317	May cause an allergic skin reaction

Full text of H statements : see section 16

#### 2.2. GHS Label elements, including precautionary statements

##### GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

H302 - Harmful if swallowed  
H311 - Toxic in contact with skin  
H314 - Causes severe skin burns and eye damage  
H317 - May cause an allergic skin reaction  
H318 - Causes serious eye damage

Precautionary statements (GHS US) :

P260 - Do not breathe dust/fume/gas/mist/vapors/spray.  
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray.  
P264 - Wash hands, forearms and face thoroughly after handling.

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P270 - Do not eat, drink or smoke when using this product.  
P272 - Contaminated work clothing must not be allowed out of the workplace.  
P280 - Wear protective gloves/protective clothing/eye protection/face protection.  
P301+P312 - If swallowed: Call a poison center or doctor if you feel unwell.  
P301+P330+P331 - If swallowed: rinse mouth. Do NOT induce vomiting.  
P302+P352 - If on skin: Wash with plenty of water.  
P303+P361+P353 - If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing.  
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.  
P312 - Call a poison center or doctor if you feel unwell.  
P321 - Specific treatment (see supplemental first aid instruction on this label).  
P322 - Specific treatment (see supplemental first aid instruction on this label)  
P330 - Rinse mouth.  
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.  
P361+P364 - Take off immediately all contaminated clothing and wash it before reuse.  
P363 - Wash contaminated clothing before reuse.  
P405 - Store locked up.  
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

### 2.3. Other hazards which do not result in classification

No additional information available

### 2.4. Unknown acute toxicity (GHS US)

Not applicable

## SECTION 3: Composition/Information on ingredients

### 3.1. Substances

Not applicable

### 3.2. Mixtures

Name	Product identifier	%	GHS US classification
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-hydro.-omega.-(2-aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-propanediol (3:1)	CAS-No.: 39423-51-3	30 – 45	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318
Triethylenetetramine	CAS-No.: 112-24-3	20 – 30	Acute Tox. 3 (Dermal), H311 Skin Corr. 1B, H314 Skin Sens. 1, H317 Aquatic Chronic 3, H412
Diethylenetriamine	CAS-No.: 111-40-0	< 10	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317

Full text of hazard classes and H-statements : see section 16

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### SECTION 4: First-aid measures

#### 4.1. Description of first aid measures

First-aid measures general	: Call a physician immediately.
First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.
First-aid measures after ingestion	: Rinse mouth. Do not induce vomiting. Call a physician immediately.

#### 4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after skin contact	: Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

#### 4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

### SECTION 5: Fire-fighting measures

#### 5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Not determined.

#### 5.2. Specific hazards arising from the chemical

Hazardous decomposition products in case of fire	: Toxic fumes may be released.
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#### 5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Exercise caution when fighting any chemical fire.
Protection during firefighting	: Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

### SECTION 6: Accidental release measures

#### 6.1. Personal precautions, protective equipment and emergency procedures

##### 6.1.1. For non-emergency personnel

Emergency procedures	: Ventilate spillage area. Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapors/spray.
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##### 6.1.2. For emergency responders

Protective equipment	: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
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#### 6.2. Environmental precautions

Avoid release to the environment.

#### 6.3. Methods and material for containment and cleaning up

Methods for cleaning up	: Take up liquid spill into absorbent material.
Other information	: Dispose of materials or solid residues at an authorized site.

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### 6.4. Reference to other sections

For further information refer to section 13.

## SECTION 7: Handling and storage

### 7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Do not get in eyes, on skin, or on clothing. Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray.

Hygiene measures : Wash contaminated clothing before reuse. Contaminated work clothing should not be allowed out of the workplace. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

### 7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

## SECTION 8: Exposure controls/personal protection

### 8.1. Control parameters

#### Epoxicure 2 Hardener

No additional information available

#### 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)

No additional information available

#### Triethylenetetramine (112-24-3)

No additional information available

#### Diethylenetriamine (111-40-0)

##### USA - ACGIH - Occupational Exposure Limits

ACGIH OEL TWA [ppm]	1 ppm
ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route

### 8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.

Environmental exposure controls : Avoid release to the environment.

### 8.3. Individual protection measures/Personal protective equipment

#### Hand protection:

Protective gloves

#### Eye protection:

Safety glasses

#### Skin and body protection:

Wear suitable protective clothing

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### Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

### Personal protective equipment symbol(s):



## SECTION 9: Physical and chemical properties

### 9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Liquid.
Color	: Clear light yellow
Odor	: ammonia-like
Odor threshold	: No data available
pH	: No data available
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 100 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Vapor pressure at 50 °C	: < 1 mm Hg
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Density	: 1.03 g/cm <sup>3</sup>
Solubility	: Material nearly insoluble in water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: 280 – 420 cP
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

### 9.2. Other information

No additional information available

## SECTION 10: Stability and reactivity

### 10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

### 10.2. Chemical stability

Stable under normal conditions.

### 10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

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### 10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

### 10.5. Incompatible materials

Strong oxidizing agents.

### 10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## SECTION 11: Toxicological information

### 11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.  
Acute toxicity (dermal) : Toxic in contact with skin.  
Acute toxicity (inhalation) : Not classified.

Epoxicure 2 Hardener	
ATE US (oral)	819.672 mg/kg body weight
ATE US (dermal)	956.522 mg/kg body weight

### 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)

LD50 dermal rat	> 1000 mg/kg
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight

### Triethylenetetramine (112-24-3)

LD50 oral rat	2500 mg/kg
LD50 dermal rabbit	550 mg/kg
ATE US (oral)	2500 mg/kg body weight
ATE US (dermal)	550 mg/kg body weight

### Diethylenetriamine (111-40-0)

LD50 oral rat	1080 mg/kg
LD50 dermal rabbit	672 mg/kg
LC50 Inhalation - Rat	70 mg/l/4h
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight

Skin corrosion/irritation : Causes severe skin burns.  
Serious eye damage/irritation : Causes serious eye damage.  
Respiratory or skin sensitization : May cause an allergic skin reaction.  
Germ cell mutagenicity : Not classified.  
Carcinogenicity : Not classified.  
Reproductive toxicity : Not classified.  
STOT-single exposure : Not classified.  
STOT-repeated exposure : Not classified.  
Aspiration hazard : Not classified.

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Viscosity, kinematic	: No data available
Symptoms/effects after skin contact	: Burns. May cause an allergic skin reaction.
Symptoms/effects after eye contact	: Serious damage to eyes.
Symptoms/effects after ingestion	: Burns.

### SECTION 12: Ecological information

#### 12.1. Toxicity

Ecology - general : Before neutralisation, the product may represent a danger to aquatic organisms.

Triethylenetetramine (112-24-3)	
LC50 - Fish [1]	570 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])
EC50 - Crustacea [1]	31.1 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	495 mg/l (Exposure time: 96 h - Species: Pimephales promelas)
Diethylenetriamine (111-40-0)	
LC50 - Fish [1]	248 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [static])
EC50 - Crustacea [1]	16 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 - Fish [2]	1014 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])

#### 12.2. Persistence and degradability

No additional information available

#### 12.3. Bioaccumulative potential

Triethylenetetramine (112-24-3)	
BCF - Fish [1]	(no bioaccumulation expected)
Partition coefficient n-octanol/water (Log Pow)	-1.4
Diethylenetriamine (111-40-0)	
BCF - Fish [1]	0.3 – 1.7
Partition coefficient n-octanol/water (Log Pow)	-1.3

#### 12.4. Mobility in soil

No additional information available

#### 12.5. Other adverse effects

No additional information available

### SECTION 13: Disposal considerations

#### 13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

### SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

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### 14.1. UN number

DOT NA No : UN2735  
UN-No. (IMDG) : 2735  
UN-No. (IATA) : 2735

### 14.2. UN proper shipping name

Proper Shipping Name (DOT) : Polyamines, liquid, corrosive, n.o.s. (Aliphatic amine blend)  
Proper Shipping Name (TDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Aliphatic amine blend)  
Proper Shipping Name (IMDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Aliphatic amine blend)  
Proper Shipping Name (IATA) : Amines, liquid, corrosive, n.o.s. (Aliphatic amine blend)

### 14.3. Transport hazard class(es)

#### DOT

Transport hazard class(es) (DOT) : 8  
Hazard labels (DOT) : 8



#### IMDG

Transport hazard class(es) (IMDG) : 8  
Hazard labels (IMDG) : 8



#### IATA

Transport hazard class(es) (IATA) : 8  
Hazard labels (IATA) : 8



### 14.4. Packing group

Packing group (DOT) : III  
Packing group (IMDG) : III  
Packing group (IATA) : III

### 14.5. Environmental hazards

Other information : No supplementary information available.

### 14.6. Special precautions for user

#### DOT

UN-No.(DOT) : UN2735



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DOT Special Provisions (49 CFR 172.102)	:	IB3 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1 and 31HA2, 31HB2, 31HN2, 31HD2 and 31HH2). Additional Requirement: Only liquids with a vapor pressure less than or equal to 110 kPa at 50 C (1.1 bar at 122 F), or 130 kPa at 55 C (1.3 bar at 131 F) are authorized, except for UN2672 (also see Special Provision IP8 in Table 2 for UN2672). T7 - 4 178.274(d)(2) Normal..... 178.275(d)(3) TP1 - The maximum degree of filling must not exceed the degree of filling determined by the following: Degree of filling = $97 / 1 + a (tr - tf)$ Where: tr is the maximum mean bulk temperature during transport, and tf is the temperature in degrees celsius of the liquid during filling. TP28 - A portable tank having a minimum test pressure of 2.65 bar (265 kPa) may be used provided the calculated test pressure is 2.65 bar or less based on the MAWP of the hazardous material, as defined in 178.275 of this subchapter, where the test pressure is 1.5 times the MAWP.
DOT Packaging Exceptions (49 CFR 173.xxx)	:	154
DOT Packaging Non Bulk (49 CFR 173.xxx)	:	203
DOT Packaging Bulk (49 CFR 173.xxx)	:	241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	:	5 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	:	60 L
DOT Vessel Stowage Location	:	A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	:	52 - Stow "separated from" acids

<b>IMDG</b>		
Special provision (IMDG)	:	223, 274
Limited quantities (IMDG)	:	5 L
Excepted quantities (IMDG)	:	E1
Packing instructions (IMDG)	:	P001, LP01
IBC packing instructions (IMDG)	:	IBC03
Tank instructions (IMDG)	:	T7
Tank special provisions (IMDG)	:	TP1, TP28
EmS-No. (Fire)	:	F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	:	S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES
Stowage category (IMDG)	:	A
Properties and observations (IMDG)	:	Colourless to yellowish liquids or solutions with a pungent odour. Miscible with or soluble in water. When involved in a fire, evolve toxic gases. Corrosive to most metals, especially to copper and its alloys. Reacts violently with acids. Cause burns to skin, eyes and mucous membranes.

<b>IATA</b>		
PCA Excepted quantities (IATA)	:	E1
PCA Limited quantities (IATA)	:	Y841
PCA limited quantity max net quantity (IATA)	:	1L
PCA packing instructions (IATA)	:	852
PCA max net quantity (IATA)	:	5L
CAO packing instructions (IATA)	:	856
CAO max net quantity (IATA)	:	60L
Special provision (IATA)	:	A3, A803
ERG code (IATA)	:	8L

### 14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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### SECTION 15: Regulatory information

#### 15.1. US Federal regulations

##### Epoxicure 2 Hardener

SARA Section 311/312 Hazard Classes	Health hazard - Acute toxicity (any route of exposure) Health hazard - Respiratory or skin sensitization Health hazard - Serious eye damage or eye irritation Health hazard - Skin corrosion or Irritation
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All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture is not known to contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) 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.

#### 15.2. International regulations

##### 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)

Listed on the NCI (Vietnam - National Chemical Inventory)

##### Triethylenetetramine (112-24-3)

Listed on the NCI (Vietnam - National Chemical Inventory)

##### Diethylenetriamine (111-40-0)

Listed on the NCI (Vietnam - National Chemical Inventory)

#### 15.3. US State regulations

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Component	State or local regulations
Triethylenetetramine(112-24-3)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List
Diethylenetriamine(111-40-0)	U.S. - New Jersey - Right to Know Hazardous Substance List; U.S. - Pennsylvania - RTK (Right to Know) List; U.S. - Massachusetts - Right To Know List

### SECTION 16: Other information

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Revision date : 08/12/2022

Full text of H-phrases	
H302	Harmful if swallowed
H311	Toxic in contact with skin

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Full text of H-phrases	
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H412	Harmful to aquatic life with long lasting effects

Safety Data Sheet (SDS), USA - HSI

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