

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Product name : EpoThin 2 Hardener
Product code : 203442-016, 203442-064

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

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

Flammable liquids Category 4	H227	Combustible liquid
Acute toxicity (oral) Category 4	H302	Harmful if swallowed
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
Reproductive toxicity Category 2	H361	Suspected of damaging fertility or the unborn child

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) : H227 - Combustible liquid
H302 - Harmful if swallowed
H314 - Causes severe skin burns and eye damage
H317 - May cause an allergic skin reaction
H318 - Causes serious eye damage
H361 - Suspected of damaging fertility or the unborn child

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Precautionary statements (GHS US)	: P201 - Obtain special instructions before use. P202 - Do not handle until all safety precautions have been read and understood. P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. 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. 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. P308+P313 - If exposed or concerned: Get medical advice/attention. P310 - Immediately call a poison center or doctor. P321 - 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. P363 - Wash contaminated clothing before reuse. P370+P378 - In case of fire: Use media other than water to extinguish. P403+P235 - Store in a well-ventilated place. Keep cool. 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.
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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.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)-	CAS-No.: 9046-10-0	> 30	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318 Eye Irrit. 2A, H319

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Name	Product identifier	%	GHS US classification
1,3-Benzenedimethanamine	CAS-No.: 1477-55-0	10 – 15	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1B, H314 Eye Dam. 1, H318 Skin Sens. 1, H317
4-tert-Butylphenol	CAS-No.: 98-54-4	10 – 15	Skin Irrit. 2, H315 Eye Dam. 1, H318 Repr. 2, H361 Aquatic Chronic 1, H410
Triphenyl phosphite	CAS-No.: 101-02-0	< 10	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 Aquatic Acute 1, H400 Aquatic Chronic 1, H410

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

SECTION 4: First-aid measures

4.1. Description of first aid measures

No additional information available

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

No additional information available

4.3. Immediate medical attention and special treatment, if necessary

No additional information available

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Unsuitable extinguishing media : Not determined.

5.2. Specific hazards arising from the chemical

No additional information available

5.3. Special protective equipment and precautions for fire-fighters

No additional information available

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

No additional information available

6.1.2. For emergency responders

No additional information available

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6.2. Environmental precautions

No additional information available

6.3. Methods and material for containment and cleaning up

No additional information available

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

No additional information available

7.2. Conditions for safe storage, including any incompatibilities

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)

No additional information available

1,3-Benzenedimethanamine (1477-55-0)

USA - ACGIH - Occupational Exposure Limits

ACGIH OEL Ceiling [ppm]	0.018 ppm
ACGIH chemical category	Skin - potential significant contribution to overall exposure by the cutaneous route

4-tert-Butylphenol (98-54-4)

No additional information available

Triphenyl phosphite (101-02-0)

No additional information available

8.2. Appropriate engineering controls

No additional information available

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment symbol(s):



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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Clear.
Color	: Colorless
Odor	: Acrid
Odor threshold	: No data available
pH	: No data available
Melting point	: No data available
Freezing point	: < 0 °C
Boiling point	: No data available
Flash point	: > 90 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: < 1 mm Hg
Relative vapor density at 20 °C	: No data available
Relative density	: No data available
Density	: 1 g/cm ³
Solubility	: Soluble.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 150 mm ² /s
Viscosity, dynamic	: 150 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

No additional information available

10.2. Chemical stability

No additional information available

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

Acids.

10.6. Hazardous decomposition products

No additional information available

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified.
Acute toxicity (inhalation) : Not classified.

EpoThin 2 Hardener	
ATE US (oral)	664.698 mg/kg body weight

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)	
LD50 oral rat	242 mg/kg
LD50 dermal rabbit	2980 mg/kg
LC50 Inhalation - Rat	> 0.74 mg/l (Exposure time: 8 h)
ATE US (oral)	242 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight

1,3-Benzenedimethanamine (1477-55-0)	
LD50 oral rat	660 mg/kg
LD50 dermal rabbit	2 g/kg
LC50 Inhalation - Rat	1.16 mg/l/4h
ATE US (oral)	660 mg/kg body weight
ATE US (dermal)	2000 mg/kg body weight
ATE US (vapors)	1.16 mg/l/4h
ATE US (dust, mist)	1.16 mg/l/4h

4-tert-Butylphenol (98-54-4)	
LD50 oral rat	4000 mg/kg
LD50 dermal rabbit	2318 mg/kg
ATE US (oral)	4000 mg/kg body weight
ATE US (dermal)	2318 mg/kg body weight

Triphenyl phosphite (101-02-0)	
LD50 oral rat	1590 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 Inhalation - Rat	> 6.7 mg/l (Exposure time: 1 h)

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 : Suspected of damaging fertility or the unborn child.
STOT-single exposure : Not classified.
STOT-repeated exposure : Not classified.
Aspiration hazard : Not classified.
Viscosity, kinematic : 150 mm²/s

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SECTION 12: Ecological information

12.1. Toxicity

1,3-Benzenedimethanamine (1477-55-0)

LC50 - Fish [1]	87.6 mg/l (Exposure time: 96 h - Species: Oryzias latipes [semi-static])
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4-tert-Butylphenol (98-54-4)

LC50 - Fish [1]	4.71 – 5.62 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
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EC50 - Crustacea [1]	3.9 mg/l (Exposure time: 48 h - Species: Daphnia magna)
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LC50 - Fish [2]	6.9 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])
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EC50 - Crustacea [2]	3.4 – 4.5 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
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12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)

Partition coefficient n-octanol/water (Log Pow)	1.34 (at 25 °C)
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1,3-Benzenedimethanamine (1477-55-0)

Partition coefficient n-octanol/water (Log Pow)	0.18 (at 25 °C (at pH >=10.3-<=10.4))
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4-tert-Butylphenol (98-54-4)

BCF - Fish [1]	44 – 48
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Partition coefficient n-octanol/water (Log Pow)	3 (at 23 °C (at pH 5.7))
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Triphenyl phosphite (101-02-0)

Partition coefficient n-octanol/water (Log Pow)	4.98
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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

No additional information available

SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

14.1. UN number

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

14.2. UN proper shipping name

Proper Shipping Name (DOT) : Polyamines, liquid, corrosive, n.o.s. (Benzene-1,3-dimethaneamine, P-t-butylphenol)
Proper Shipping Name (TDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Benzene-1,3-dimethaneamine, P-t-butylphenol)
Proper Shipping Name (IMDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Benzene-1,3-dimethaneamine, P-t-butylphenol)
Proper Shipping Name (IATA) : Amines, liquid, corrosive, n.o.s. (Benzene-1,3-dimethaneamine, P-t-butylphenol)

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) : II
Packing group (IMDG) : II
Packing group (IATA) : II

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)	: B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tanks are not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Composite (31HZ1). 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. T11 - 6 178.274(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. TP27 - A portable tank having a minimum test pressure of 4 bar (400 kPa) may be used provided the calculated test pressure is 4 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)	: 202
DOT Packaging Bulk (49 CFR 173.xxx)	: 242
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 1 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 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

IMDG	
Special provision (IMDG)	: 274
Limited quantities (IMDG)	: 1 L
Excepted quantities (IMDG)	: E2
Packing instructions (IMDG)	: P001
IBC packing instructions (IMDG)	: IBC02
Tank instructions (IMDG)	: T11
Tank special provisions (IMDG)	: TP1, TP27
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.

IATA	
PCA Excepted quantities (IATA)	: E2
PCA Limited quantities (IATA)	: Y840
PCA limited quantity max net quantity (IATA)	: 0.5L
PCA packing instructions (IATA)	: 851
PCA max net quantity (IATA)	: 1L
CAO packing instructions (IATA)	: 855
CAO max net quantity (IATA)	: 30L
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

EpoThin 2 Hardener

SARA Section 311/312 Hazard Classes	Physical hazard - Flammable (gases, aerosols, liquids, or solids) Health hazard - Acute toxicity (any route of exposure) Health hazard - Respiratory or skin sensitization Health hazard - Reproductive toxicity 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.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)

Listed on the NCI (Vietnam - National Chemical Inventory)

1,3-Benzenedimethanamine (1477-55-0)

Listed on the NCI (Vietnam - National Chemical Inventory)

4-tert-Butylphenol (98-54-4)

Listed on the NCI (Vietnam - National Chemical Inventory)

Triphenyl phosphite (101-02-0)

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
1,3-Benzenedimethanamine(1477-55-0)	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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Full text of H-phrases	
H227	Combustible liquid
H302	Harmful if swallowed
H312	Harmful in contact with skin
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H319	Causes serious eye irritation
H332	Harmful if inhaled
H361	Suspected of damaging fertility or the unborn child
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Safety Data Sheet (SDS), USA - HSI

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