

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations SDS ID: 1346413_ Issue date: 5/18/2022 Revision date: 5/18/2022 Version: 1.0

SECTION 1: Identification		
1.1. Identification		
Product form Product name Product code	: Mixture : EpoHeat CLR Hardener : 20-3424-016	
1.2. Recommended use and restrictions of	on use	
Recommended use Restrictions on use	: Laboratory chemicals : None known	
1.3. Supplier		
Buehler 41 Waukegan Rd Lake Bluff, IL 60044 T 1-847-295-6500 <u>custserv@buehler.com</u>		
1.4. Emergency telephone number		
Emergency number	: Global Access Code: 334545; Asia Pacific +1 760 476 3960;	Americas" +1 760 476 3962; Middle East/Africa: +1 760 476 3959; Europe +1 760 476 3961
SECTION 2: Hazard(s) identification		
2.1. Classification of the substance or mi	xture	
GHS US classification		
Flammable liquids Category 4 Acute toxicity (oral) Category 4 Acute toxicity (dermal) Category 4 Acute toxicity (inhalation:dust,mist) Category 4 Skin corrosion/irritation Category 1B	H227 H302 H312 H332 H314	Combustible liquid Harmful if swallowed Harmful in contact with skin Harmful if inhaled Causes severe skin burns and eye damage
Serious eye damage/eye irritation Category 1 Respiratory sensitization, Category 1	H318 H334	Causes serious eye damage May cause an allergy or asthma symptoms or breathing

Skin sensitization, Category 1 Reproductive toxicity Category 2 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) Hazard statements (GHS US)



H317

H361

: Danger

: H227 - Combustible liquid H302+H312+H332 - Harmful if swallowed, in contact with skin or if inhaled H314 - Causes severe skin burns and eye damage H317 - May cause an allergic skin reaction

difficulties if inhaled

May cause an allergic skin reaction

Suspected of damaging fertility or the unborn child

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

	H318 - Causes serious eye damage
	H334 - May cause an allergy or asthma symptoms or breathing difficulties if inhaled
	H361 - Suspected of damaging fertility or the unborn child
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.
	P271 - Use only outdoors or in a well-ventilated area.
	P272 - Contaminated work clothing must not be allowed out of the workplace.
	P280 - Wear protective gloves/protective clothing/eye protection/face protection.
	P284 - [In case of inadequate ventilation] wear respiratory 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.
	P304+P341 - If inhaled: If breathing is difficult, 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.
	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.
	P342+P311 - If experiencing respiratory symptoms: Call a poison center or doctor.
	P362+P364 - Take off contaminated clothing and wash it before reuse.
	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.

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

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

3.2. Mixtures

Name	Product identifier	%	GHS US classification
1,2-Cyclohexanediamine	CAS-No.: 694-83-7	68	Acute Tox. 4 (Dermal), H312 Acute Tox. 4 (Inhalation:dust,mist), H332 Skin Corr. 1B, H314 Eye Dam. 1, H318
Poly[oxy(methyl-1,2-ethanediyl)], .alphahydroomega(2- aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3- propanediol (3:1)	CAS-No.: 39423-51-3	25 – 35	Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Skin Corr. 1B, H314 Eye Dam. 1, H318
Piperazine	CAS-No.: 110-85-0	1 – 2	Skin Corr. 1B, H314 Eye Dam. 1, H318 Resp. Sens. 1, H334 Skin Sens. 1, H317 Repr. 2, H361

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

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. Call a poison center/doctor/physician if you feel unwell.
First-aid measures after skin contact	: Rinse skin with water/shower. Remove/Take off immediately all contaminated clothing. 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	s (acute and delayed)
Symptoms/effects after inhalation Symptoms/effects after skin contact Symptoms/effects after eye contact Symptoms/effects after ingestion	 May cause an allergy or asthma symptoms or breathing difficulties if inhaled. Burns. May cause an allergic skin reaction. Serious damage to eyes. Burns.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures			
5.1. Suitable (and unsuitable) extinguishing	g media		
Suitable extinguishing media Unsuitable extinguishing media	Water spray. Dry powder. Foam. Carbon dioxide.Not determined.		
5.2. Specific hazards arising from the chemical			
Fire hazard Hazardous decomposition products in case of fire	: Combustible liquid. : Toxic fumes may be released.		

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.3. Special protective equipment and precautions for fire-fighters		
Firefighting instructions	: Eliminate all ignition sources if safe to do so. Evacuate area. 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. No open flames, no sparks, and no smoking. Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapors/spray.	
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".	
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. Notify authorities if product enters sewers or public waters.	
Other information	: Dispose of materials or solid residues at an authorized site.	
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	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not get in eyes, on skin, or on clothing. Use only outdoors or in a well-ventilated area. 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, in	ncluding any incompatibilities	

Storage conditions

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

SECTION 8: Exposure controls/personal protection		
8.1. Control parameters		
EpoHeat CLR Hardener		
No additional information available		

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

1,2-Cyclohexanediamine (694-83-7)			
No additional information available			
Poly[oxy(methyl-1,2-ethanediyl)], .alphahydroomega(2-aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3- propanediol (3:1) (39423-51-3)			
No additional information available			
Triethanolamine (102-71-6)			
USA - ACGIH - Occupational Exposure Limits			
ACGIH OEL TWA	5 mg/m ³		
Piperazine (110-85-0)			
USA - ACGIH - Occupational Exposure Limits			
ACGIH OEL TWA [ppm]	0.03 ppm (inhalable fraction and vapor)		
ACGIH chemical category	Not Classifiable as a Human Carcinogen, dermal sensitizer		
8.2. Appropriate engineering controls			
	Ensure good ventilation of the work station. Avoid release to the environment.		
8.3. Individual protection measures/Personal protective equipment			
Hand protection:			
Protective gloves			
Eye protection:			
Chemical goggles or safety glasses			
Skin and body protection:			
Wear suitable protective clothing			
Respiratory protection:			
Wear respiratory protection.			
Personal protective equipment symbol(s):			



SECTION 9: Physical and chemical properties

Physical state Appearance Color Odor Odor threshold pH	: Liquid : Clear. : Colorless : Amine-like : No data available : No data available
Melting point	: Not applicable : No data available
Freezing point	. No data avaliable

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Boiling point	: No data available
Flash point	: >70 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20 °C	: No data available
Relative density	: 0.97
Solubility	: No data available
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	: No data available
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.

10.4. Conditions to avoid

Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition. Moisture.

10.5. Incompatible materials

Strong acids. Strong bases. 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 (dermal)	Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.
EpoHeat CLR Hardener	
ATE US (oral)	1364.107 mg/kg body weight
ATE US (dermal)	1601.355 mg/kg body weight
ATE US (dust, mist)	2.206 mg/l/4h

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

1,2-Cyclohexanediamine (694-83-7)	
LD50 oral rat	4556 mg/kg
LD50 dermal rat	1870 mg/kg
LC50 Inhalation - Rat	> 3.23 mg/l/4h
ATE US (oral)	4556 mg/kg body weight
ATE US (dermal)	1870 mg/kg body weight
ATE US (dust, mist)	1.5 mg/l/4h
Poly[oxy(methyl-1,2-ethanediyl)], .alphah propanediol (3:1) (39423-51-3)	ydroomega(2-aminomethylethoxy)-, ether with 2-ethyl-2-(hydroxymethyl)-1,3-
LD50 dermal rat	> 1000 mg/kg
ATE US (oral)	500 mg/kg body weight
ATE US (dermal)	1100 mg/kg body weight
Piperazine (110-85-0)	
LD50 oral rat	600 mg/kg
LD50 dermal rabbit	1590 mg/kg
ATE US (oral)	600 mg/kg body weight
ATE US (dermal)	1590 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 allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity	: Not classified.
Carcinogenicity	: Not classified.
Reproductive toxicity	
STOT-single exposure	: Suspected of damaging fertility or the unborn child. : Not classified.
STOT-repeated exposure	: Not classified.
Aspiration hazard Viscosity, kinematic	: Not classified. : No data available
Symptoms/effects after inhalation	: May cause an allergy or asthma symptoms or breathing difficulties if inhaled.
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.
Piperazine (110-85-0)	
LC50 - Fish [1]	> 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
12.2. Persistence and degradability	

No additional information available

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

cumulative potential			
(110-85-0)			
1]	0.3 – 3.9		
ity in soil			
information available			
-			

12.5. Other adverse effects

No additional information available

SECTION 13: Disposal consideration	S
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	
14.1. UN number	
DOT NA No UN-No. (IMDG) UN-No. (IATA)	: UN2735 : 2735 : 2735
14.2. UN proper shipping name	
Proper Shipping Name (DOT) Proper Shipping Name (TDG) Proper Shipping Name (IMDG) Proper Shipping Name (IATA)	 Polyamines, liquid, corrosive, n.o.s. AMINES, LIQUID, CORROSIVE, N.O.S. AMINES, LIQUID, CORROSIVE, N.O.S. Amines, liquid, corrosive, n.o.s.
14.3. Transport hazard class(es)	
DOT Transport hazard class(es) (DOT) Hazard labels (DOT)	: 8 : 8 CORROSTE
IMDG Transport hazard class(es) (IMDG) Hazard labels (IMDG)	
IATA Transport hazard class(es) (IATA)	: 8

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

IATA PCA Excepted quantities (IATA)	: E2	
IBC packing instructions (IMDG) Tank instructions (IMDG) Tank special provisions (IMDG) EmS-No. (Fire) EmS-No. (Spillage) Stowage category (IMDG) Properties and observations (IMDG)	 IBC02 T11 TP1, TP27 F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE S-B - SPILLAGE SCHEDULE Bravo - CORROSIVE SUBSTANCES A Colourless to yellowish liquids or solutions with a pungent odour. Miscible with or soluble water. When involved in a fire, evolve toxic gases. Corrosive to most metals, especially t and its alloys. Reacts violently with acids. Cause burns to skin, eyes and mucous membric 	o coppe
IMDG Special provision (IMDG) Limited quantities (IMDG) Excepted quantities (IMDG) Packing instructions (IMDG)	: 274 : 1 L : E2 : P001	
DOT Vessel Stowage Location DOT Vessel Stowage Other	 : A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel. : 52 - Stow "separated from" acids 	
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 30 L	
DOT Packaging Non Bulk (49 CFR 173.xxx) DOT Packaging Bulk (49 CFR 173.xxx) DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 202 : 242	
DOT Packaging Exceptions (49 CFR 173.xxx)	 not authorized. IB2 - Authorized IBCs: Metal (31A, 31B and 31N); Rigid plastics (31H1 and 31H2); Comp (31HZ1). Additional Requirement: Only liquids with a vapor pressure less than or equal to 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	to 110 the erature provideo
DOT UN-No.(DOT) DOT Special Provisions (49 CFR 172.102)	: UN2735 : B2 - MC 300, MC 301, MC 302, MC 303, MC 305, and MC 306 and DOT 406 cargo tank	s are
14.6. Special precautions for user		
Other information	: No supplementary information available.	
Packing group (IMDG) Packing group (IATA) 14.5. Environmental hazards	: II : II	
14.4. Packing group Packing group (DOT)	: 11	
Hazard labels (IATA)		

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

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

SECTION 15: Regulatory information

15.1. US Federal regulations

EpoHeat CLR 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	

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

1,2-Cyclohexanediamine (694-83-7)

Listed on the NCI (Vietnam - National Chemical Inventory)

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)

Piperazine (110-85-0)

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

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Component	State or local regulations
Piperazine(110-85-0)	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

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Revision date : 05/18/2022

Full text of H	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		
H317	May cause an allergic skin reaction		
H318	Causes serious eye damage		
H332	Harmful if inhaled		
H334	May cause an allergy or asthma symptoms or breathing difficulties if inhaled		
H361	Suspected of damaging fertility or the unborn child		

Safety Data Sheet (SDS), USA - HSI

DISCLAIMER OF LIABILITY The information in this SDS was obtained from sources which we believe are reliable. However, the information is provided without any warranty, express or implied, regarding its correctness. The conditions or methods of handling, storage, use or disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product. This SDS was prepared and is to be used only for this product. If the product is used as a component in another product, this SDS information may not be applicable