

# Entropy Resins® Clear Fast Hardener

## Safety Data Sheet

According to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012 and the Hazardous Products Regulations (HPR) WHMIS 2015

Issue date: 02/12/2018

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Version: CEH-CLF-2023A

### SECTION 1: Identification

#### Identification

**Product form** : Mixture  
**Product name** : Entropy Resins® Clear Fast Hardener  
**Product code** : CEH-CLF, CEH-CLF-QT, CEH-CLF-2QT, CEH-CLF-GAL, CEH-CLF-2.5GAL, CEH-CLF-5GAL, CEH-CLF-HD, CEH-CLF-D, CEH-CLF-T

#### Relevant identified uses of the substance or mixture and uses advised against

**Recommended use** : Curing agent for epoxy resins

#### Details of the supplier of the safety data sheet

##### Manufacturer

Gougeon Brothers, Inc  
100 Patterson Ave.  
Bay City, MI 48706 - U.S.A.  
T 888-377-6738 or 989-684-7286

[www.prosetepoxy.com](http://www.prosetepoxy.com)

#### Emergency telephone number

**Emergency number** : CHEMTREC 1 (800) 424-9300  
CHEMTREC International +1 (703) 527-3887 24 hr

### SECTION 2: Hazard identification

#### Classification of the substance or mixture

Acute Tox. 4 (Oral)  
Skin Corr. 1B  
Eye Dam. 1  
Skin Sens. 1  
Aquatic Acute 3  
Aquatic Chronic 3

#### Label elements

##### Hazard pictograms (GHS)



GHS05

GHS07

##### Signal word (GHS)

Danger

##### Hazard statements (GHS)

Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Harmful to aquatic life. Harmful to aquatic life with long lasting effects.

##### Precautionary statements (GHS)

Do not breathe dust, fume, gas, mist, spray, vapours. Wash hands, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Avoid release to the environment. Wear eye protection, face protection, protective clothing, protective gloves. If swallowed: rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. 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. Wash contaminated clothing before reuse. Store locked up. Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

#### Other hazards

No additional information available

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### Unknown acute toxicity

29.63% of the mixture consists of ingredient(s) of unknown acute toxicity (Oral)

## SECTION 3: Composition/information on ingredients

### Substances

Not applicable

### Mixtures

Name	Product identifier	%
Benzyl alcohol	(CAS-No.) 100-51-6	15 – 40
Trimethylhexamethylenediamine	(CAS-No.) 25620-58-0	15 – 40
1,3-Cyclohexanedimethanamine	(CAS-No.) 2579-20-6	10 – 30
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane, reaction products with 2,2,4(or 2,4,4)-trimethyl-1,6-hexanediamine	(CAS-No.) 111850-23-8	10 – 30
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine	(CAS-No.) 60112-98-3	7 – 13

\* The exact chemical identity and/or exact percentage (concentration) of each ingredient may be held as confidential business information (CBI). Any ingredient not disclosed in this section may have been determined not to be hazardous to health or the environment, or it may be present at a level below its disclosure threshold.

## SECTION 4: First-aid measures

### Description of first aid measures

- First-aid measures after inhalation** : If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor.
- First-aid measures after skin contact** : If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a POISON CENTER or doctor.
- First-aid measures after eye contact** : 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/doctor.
- First-aid measures after ingestion** : IF SWALLOWED: rinse mouth. Do NOT induce vomiting. Immediately call a POISON CENTER or doctor. Never give anything by mouth to an unconscious person.

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

- Symptoms/effects after inhalation** : Causes burns to the respiratory system.
- Symptoms/effects after skin contact** : Causes severe skin burns. Symptoms may include redness, pain, blisters. May cause an allergic skin reaction.
- Symptoms/effects after eye contact** : Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.
- Symptoms/effects after ingestion** : Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

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

Symptoms may be delayed. In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

## SECTION 5: Fire-fighting measures

### Extinguishing media

- Suitable extinguishing media** : Carbon dioxide (CO<sub>2</sub>), dry chemical powder, foam.
- Unsuitable extinguishing media** : Do not use water jet.

### Special hazards arising from the substance or mixture

- Fire hazard** : Products of combustion may include, and are not limited to: oxides of carbon. Oxides of nitrogen. Volatile amines. Ammonia. Nitric acid. Aldehydes. Phenolics. Cyanides. When mixed with sawdust, wood chips, or other cellulosic material, spontaneous combustion can occur under certain conditions. Heat is generated as the air oxidizes the amine. If the heat is not dissipated quickly enough, it can ignite the sawdust.
- Reactivity** : No dangerous reactions known under normal conditions of use.

### Advice for firefighters

- Protection during firefighting** : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

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### SECTION 6: Accidental release measures

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

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

#### For non-emergency personnel

No additional information available

#### For emergency responders

No additional information available

#### Environmental precautions

Prevent entry to sewers and public waters. Notify authorities if product enters sewers or public waters. Avoid release to the environment. Collect spillage.

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

**For containment** : Stop leak if safe to do so. Absorb and/or contain spill with inert material (sand, vermiculite or other appropriate material), then place in suitable container. Do not flush into surface water or sewer system. Wear recommended personal protective equipment.

**Methods for cleaning up** : Sweep or shovel spills into appropriate container for disposal. Provide ventilation. Do not use sawdust or other combustible material to absorb spilled material.

#### Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection".

### SECTION 7: Handling and storage

#### Precautions for safe handling

**Precautions for safe handling** : Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke. Do not get in eyes, on skin, or on clothing. Ensure adequate ventilation. When mixed with epoxy curing agents this product causes an exothermic reaction, which in large masses, can produce enough heat to damage or ignite surrounding materials and emit fumes and vapors that vary widely in composition and toxicity.

**Hygiene measures** : Wash contaminated clothing before reuse. Always wash hands after handling the product.

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

**Storage conditions** : Keep out of the reach of children. Keep container tightly closed. Store in a dry, cool and well-ventilated place. Store locked up. Store away from direct sunlight or other heat sources.

**Storage temperature** : 4 – 32 °C (40 - 90 °F)

### SECTION 8: Exposure controls/personal protection

<b>CLF Hardener</b>
No additional information available
<b>Benzyl alcohol (100-51-6)</b>
No additional information available
<b>1,3-Cyclohexanedimethanamine (2579-20-6)</b>
No additional information available
<b>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine (60112-98-3)</b>
No additional information available
<b>Trimethylhexamethylenediamine (25620-58-0)</b>
No additional information available
<b>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane, reaction products with 2,2,4(or 2,4,4)-trimethyl-1,6-hexanediamine (111850-23-8)</b>
No additional information available

#### Exposure controls

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

**Hand protection** : Wear suitable gloves resistant to chemical penetration.

**Eye protection** : Wear eye/face protection.

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<b>Skin and body protection</b>	: Wear suitable protective clothing.
<b>Respiratory protection</b>	: In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
<b>Environmental exposure controls</b>	: Avoid release to the environment.
<b>Other information</b>	: Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

### SECTION 9: Physical and chemical properties

#### Information on basic physical and chemical properties

<b>Physical state</b>	: Liquid
<b>Appearance</b>	: No data available
<b>Colour</b>	: Clear
<b>Odour</b>	: ammonia-like
<b>Odour threshold</b>	: No data available
<b>pH</b>	: Expected between 11.0 – 12.5 based on ingredient data
<b>Melting point</b>	: No data available
<b>Freezing point</b>	: No data available
<b>Boiling point</b>	: No data available
<b>Flash point</b>	: > 200 °F (93 °C) (estimated based similar product.)
<b>Relative evaporation rate (butylacetate=1)</b>	: No data available
<b>Flammability (solid, gas)</b>	: No data available
<b>Vapour pressure</b>	: No data available
<b>Relative vapour density at 20 °C</b>	: No data available
<b>Relative density</b>	: 1.02 (water = 1)
<b>Solubility</b>	: Water: Appreciable.
<b>Partition coefficient n-octanol/water</b>	: No data available
<b>Auto-ignition temperature</b>	: No data available
<b>Decomposition temperature</b>	: No data available
<b>Viscosity, kinematic</b>	: 264 mm <sup>2</sup> /s
<b>Viscosity, dynamic</b>	: No data available
<b>Explosive limits</b>	: No data available
<b>Explosive properties</b>	: No data available
<b>Oxidising properties</b>	: No data available
<b>Other information</b>	
<b>VOC content</b>	: ASTM 2369-07 was used to determine the Volatile Matter Content of mixed epoxy resin and hardener. The combined VOC content for the resin and hardener system is listed below. 11.75 g/l (CLR / CLF)
<b>Bulk density</b>	: 8.5 lb/gal (1.02 kg/L)

### SECTION 10: Stability and reactivity

<b>Reactivity</b>	: Product will not react by itself. A mass of more than one pound of product mixed with an epoxy resin will cause irreversible polymerization with significant heat build up. Strong acids, bases, amines and mercaptans can cause polymerization. Product may react with water resulting in an exothermic reaction.
<b>Chemical stability</b>	: Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	: No dangerous reactions known under normal conditions of use.
<b>Conditions to avoid</b>	: Heat. Incompatible materials. Water. Moisture.

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<b>Incompatible materials</b>	: Strong acids. Strong oxidizers. Halogens and halogenated compounds. Water. Nitrates. External heating or self-heating could result in rapid temperature increase and pressure build up. If such a condition were to occur in a drum, the drum could expand and rupture violently.
<b>Hazardous decomposition products</b>	: May include, and are not limited to: oxides of carbon. Oxides of nitrogen. Volatile amines. Ammonia. Nitric acid. Aldehydes. Phenolics. Cyanides. When mixed with sawdust, wood chips, or other cellulosic material, spontaneous combustion can occur under certain conditions. Heat is generated as the air oxidizes the amine. If the heat is not dissipated quickly enough, it can ignite the sawdust.

### SECTION 11: Toxicological information

#### Information on toxicological effects

<b>Benzyl alcohol (100-51-6)</b>	
LD50 oral rat	1620 mg/kg
LD50 oral	1580 mg/kg bodyweight Animal: mouse, Guideline: OECD Guideline 401 (Acute Oral Toxicity), 95% CL: 1410 - 1770
LD50 dermal rabbit	> 2000 mg/kg bodyweight Animal: rabbit, Guideline: EPA OTS 798.1100 (Acute Dermal Toxicity), Remarks on results: other:
LC50 inhalation rat	> 4.18 mg/l/4h (aerosol)

<b>1,3-Cyclohexanedimethanamine (2579-20-6)</b>	
LD50 oral rat	700 – 780 mg/kg
LD50 dermal rabbit	1700 mg/kg

<b>Trimethylhexamethylenediamine (25620-58-0)</b>	
LD50 oral rat	910 mg/kg

<b>Acute toxicity (oral)</b>	: Harmful if swallowed.
<b>Acute toxicity (dermal)</b>	: Not classified.
<b>Acute toxicity (inhalation)</b>	: Not classified.
<b>Skin corrosion/irritation</b>	: Causes severe skin burns. pH: Expected between 11.0 – 12.5 based on ingredient data
<b>Serious eye damage/irritation</b>	: Causes serious eye damage. pH: Expected between 11.0 – 12.5 based on ingredient data
<b>Respiratory or skin sensitization</b>	: May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	: Not classified.
<b>Carcinogenicity</b>	: Not classified.
<b>Reproductive toxicity</b>	: Not classified.
<b>STOT-single exposure</b>	: Not classified.
<b>STOT-repeated exposure</b>	: Not classified.

<b>Benzyl alcohol (100-51-6)</b>	
NOAEL (oral, rat, 90 days)	400 mg/kg bodyweight Animal: rat, Guideline: other:

<b>1,3-Cyclohexanedimethanamine (2579-20-6)</b>	
LOAEL (oral, rat, 90 days)	300 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)
NOAEL (oral, rat, 90 days)	60 mg/kg bodyweight Animal: rat, Guideline: OECD Guideline 422 (Combined Repeated Dose Toxicity Study with the Reproduction / Developmental Toxicity Screening Test)

<b>Aspiration hazard</b>	: Not classified.
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<b>CLF Hardener</b>	
Viscosity, kinematic (calculated value) (40 °C)	264 mm <sup>2</sup> /s

<b>Symptoms/effects after inhalation</b>	: Causes burns to the respiratory system.
<b>Symptoms/effects after skin contact</b>	: Causes severe skin burns. Symptoms may include redness, pain, blisters. May cause an allergic skin reaction.
<b>Symptoms/effects after eye contact</b>	: Causes serious eye damage. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva. May cause burns.

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- Symptoms/effects after ingestion** : Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
- Other information** : Likely routes of exposure: ingestion, inhalation, skin and eye.

### SECTION 12: Ecological information

#### Toxicity

- Ecology - general** : May cause long-term adverse effects in the aquatic environment. Harmful to aquatic life with long lasting effects.

<b>Benzyl alcohol (100-51-6)</b>	
LC50 - Fish [1]	460 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
EC50 - Crustacea [1]	23 mg/l (Exposure time: 48 h - Species: water flea)
LC50 - Fish [2]	10 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
NOEC chronic fish	48897 mg/l Test organisms (species): other: Duration: '30 d'
<b>1,3-Cyclohexanedimethanamine (2579-20-6)</b>	
LC50 - Fish [1]	130 mg/l Test organisms (species): Leuciscus idus
EC50 - Crustacea [1]	33.1 mg/l Test organisms (species): Daphnia magna
EC50 - Crustacea [2]	65.4 mg/l Test organisms (species): Daphnia magna

#### Persistence and degradability

<b>CLF Hardener</b>	
Persistence and degradability	Not established.

#### Bioaccumulative potential

<b>CLF Hardener</b>	
Bioaccumulative potential	Not established.
<b>Benzyl alcohol (100-51-6)</b>	
Partition coefficient n-octanol/water	1.1
<b>Trimethylhexamethylenediamine (25620-58-0)</b>	
Partition coefficient n-octanol/water	0.77 (at 23 °C)

#### Mobility in soil

No additional information available

#### Other adverse effects

- Other information** : No other effects known.

Ingredient	CAS#	Ecotoxicity Classification Information
Benzyl alcohol	100-51-6	Not classified
1,3-cyclohexanedimethanamine	2579-20-6	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Phenol, 4,4'-(1-methylethylidene) bis-, polymer with 2-(chromethyl) oxirane and 1,3-cyclohexanedimethanamine	60112-98-3	Refer to 1,3-cyclohexanedimethanamine for this data.
Trimethylhexamethylenediamine	25620-58-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane, reaction products with 2,2,4(or 2,4,4)-trimethyl-1,6-hexanediamine	111850-23-8	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3

### SECTION 13: Disposal considerations

#### Waste treatment methods

- Product/Packaging disposal recommendations** : 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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## Safety Data Sheet

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### SECTION 14: Transport information

#### Department of Transportation (DOT) and Transportation of Dangerous Goods (TDG)

In accordance with DOT/TDG

UN-No.(DOT/TDG)	: UN2735
Proper Shipping Name (DOT/TDG)	: Polyamines, liquid, corrosive, n.o.s.
Proper Shipping Name - Addition	: 1,3-cyclohexanedimethanamine
Class (DOT/TDG)	: 8 - Class 8 - Corrosive material 49 CFR 173.136
Packing group (DOT/TDG)	: II

#### Transport by sea

In accordance with IMDG

UN-No. (IMDG)	: 2735
Proper Shipping Name (IMDG)	: POLYAMINES, LIQUID, CORROSIVE, N.O.S.
Proper Shipping Name – Addition	: 1,3-cyclohexanedimethanamine
Class (IMDG)	: 8 - Corrosive substances
Packing group (IMDG)	: II
Marine pollutant	: No

#### Transport by air

In accordance with IATA

UN-No. (IATA)	: 2735
Proper Shipping Name (IATA)	: Polyamines, liquid, corrosive, n.o.s.
Proper Shipping Name – Addition	: 1,3-cyclohexanedimethanamine
Class (IATA)	: 8 - Corrosives
Packing group (IATA)	: II
Marine pollutant	: No

### SECTION 15: Regulatory information

#### Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory.

All components of this product are listed, or excluded from listing, on the Canadian DSL (Domestic Substances List) and NDSL (Non-Domestic Substances List) inventories.

<b>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine (60112-98-3)</b>	
EPA TSCA Regulatory Flag	PMN - PMN - indicates a commenced PMN substance. XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
<b>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane, reaction products with 2,2,4(or 2,4,4)-trimethyl-1,6-hexanediamine (111850-23-8)</b>	
EPA TSCA Regulatory Flag	FRI - FRI - indicates a polymeric substance containing no free-radical initiator in its Inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used. XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

#### International regulations

No additional information available.

#### US State regulations

No additional information available

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<b>Benzyl alcohol (100-51-6)</b>
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U.S. - Pennsylvania - RTK (Right to Know) List U.S. - Massachusetts - Right To Know List
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<b>Trimethylhexamethylenediamine (25620-58-0)</b>
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U.S. - New Jersey - Right to Know Hazardous Substance List
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### SECTION 16: Other information

**Issue date** : 02/12/2028  
**Revision date** : 10/18/2023  
**Other information** : None.

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