

# Entropy Resins® Clear Casting Fast Hardener

## Safety Data Sheet

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

Date of issue: 08/20/2018

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Version: CEH-CCF-2023A

### SECTION 1: Identification

#### Identification

**Product form** : Mixture  
**Product name** : Entropy Resins® Clear Casting FastHardener  
**Product code** : CEH-CCF, CEH-CCF-QT, CEH-CCF-2QT, CEH-CCF-GAL, CEH-CCF-2.5GAL, CEH-CCF-5GAL, CEH-CCF-HD, CEH-CCF-D, CEH-CCF-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 310-882-2120 or 989-684-7286

##### Distributor

#### 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

Skin Corr. 1C  
Eye Dam. 1  
Resp. Sens. 1  
Skin Sens. 1  
Repr. 2  
STOT RE 2  
Aquatic Acute 3  
Aquatic Chronic 3

#### Label elements

##### Hazard pictograms (GHS)



GHS05

GHS08

##### Signal word (GHS)

Danger

##### Hazard statements (GHS)

Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of damaging fertility or the unborn child. May cause damage to organs through prolonged or repeated exposure if swallowed. Harmful to aquatic life with long lasting effects.

##### Precautionary statements (GHS)

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust, fume, gas, mist, spray, vapours. Wash hands thoroughly after handling. 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. In case of inadequate ventilation wear respiratory protection. 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 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. If exposed or concerned: Get medical advice/attention. Immediately call a poison center/doctor. If skin irritation or rash occurs: Get medical advice/attention. Get medical advice/attention if you feel unwell. If experiencing respiratory symptoms: Call a poison center/doctor. Take off contaminated clothing and wash it before reuse. Store locked up. Dispose of contents/container according to local, state, national and international regulations

# CCF Hardener

## Safety Data Sheet

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

### Other hazards

No additional information available

### Unknown acute toxicity

Not applicable

## SECTION 3: Composition/information on ingredients

### Substances

Not applicable

### Mixtures

Name	Product identifier	%
Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)-	(CAS-No.) 9046-10-0	60 - 80
Triethanolamine	(CAS-No.) 102-71-6	10 - 30
Piperazine	(CAS-No.) 110-85-0	1 - 5
1-Piperazineethanamine	(CAS-No.) 140-31-8	1 - 5

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. Wash contaminated clothing before reuse. 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. Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor.

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

- Symptoms/effects after inhalation** : Causes burns to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- 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** : May be 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** : Foam. Carbon dioxide. Dry chemical.
- Unsuitable extinguishing media** : Do not use a heavy water stream.

### Special hazards arising from the substance or mixture

- Fire hazard** : Products of combustion may include, and are not limited to: oxides of carbon. Nitrogen oxides. Amines. Ammonia. Nitric acid. Aldehydes. 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).

# CCF Hardener

## Safety Data Sheet

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

### 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 from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

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

**For containment** : 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. Do not use sawdust or other combustible material to absorb spilled material.

**Methods for cleaning up** : Sweep or shovel spills into appropriate container for disposal. Provide ventilation.

#### 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** : 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. Do not breathe dust, fume, gas, mist, spray, vapours. Do not swallow. Handle and open container with care. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. Wear personal protective equipment. When mixed with epoxy resin 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 dry, cool, well-ventilated area. Avoid high temperatures. Protect from moisture. Store locked up. Protect from sunlight.

**Storage temperature** : 40 - 90 °F / 4 - 32 °C

### SECTION 8: Exposure controls/personal protection

#### Control parameters

<b>Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)</b>		
Not applicable		
<b>Triethanolamine (102-71-6)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	5 mg/m <sup>3</sup>
<b>Piperazine (110-85-0)</b>		
ACGIH	ACGIH TWA (mg/m <sup>3</sup> )	0.03 mg/m <sup>3</sup> (inhalable fraction and vapor)
<b>1-Piperazineethanamine (140-31-8)</b>		
Not applicable		

#### 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.

**Skin and body protection** : Wear suitable protective clothing.

# CCF Hardener

## Safety Data Sheet

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

<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>	: Clear
<b>Colour</b>	: Clear
<b>Odour</b>	: Ammonia like
<b>Odour threshold</b>	: No data available
<b>pH</b>	: 11.4
<b>Melting point</b>	: No data available
<b>Freezing point</b>	: No data available
<b>Boiling point</b>	: > 400 °F (204 °C) (760 mmHg) estimated based on similar product.
<b>Flash point</b>	: > 200 °F (93 °C) estimated based on similar product.
<b>Relative evaporation rate (butylacetate=1)</b>	: No data available
<b>Flammability (solid, gas)</b>	: No data available
<b>Vapour pressure</b>	: < 1 mmHg @ 20 °C / 73 °F estimated based on ingredient data
<b>Relative vapour density at 20 °C</b>	: No data available
<b>Relative density</b>	: 0.97 (water = 1)
<b>Solubility</b>	: 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>	: 48.4 mm <sup>2</sup> /s @ 20 °C / 73 °F
<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>	: 9.2 g/l (CCR/CCF)
<b>Bulk density</b>	: 8.15 lb/gal (0.97 kg/L)

### SECTION 10: Stability and reactivity

<b>Reactivity</b>	: No dangerous reactions known under normal conditions of use.
<b>Chemical stability</b>	: Stable under normal conditions.
<b>Possibility of hazardous reactions</b>	: No dangerous reactions known under normal conditions of use. A mass of more than one pound of product plus an epoxy resin will cause irreversible polymerization with significant heat buildup and pressure. Heating will cause a rise in pressure with a risk of bursting.
<b>Conditions to avoid</b>	: Heat. Direct sunlight. Incompatible materials.
<b>Incompatible materials</b>	: Acids. Oxidizing materials. Halogenated compounds.
<b>Hazardous decomposition products</b>	: May include, and are not limited to: oxides of carbon. Toxic fumes. Toxic gases. Nitrogen oxides. Amines. Ammonia. Nitric acid. Nitrosamines.

### SECTION 11: Toxicological information

#### Information on toxicological effects

Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)	
LD50 oral rat	1100 mg/kg
LD50 dermal rabbit	1555 mg/kg
LC50 inhalation rat	> 0.74 mg/l/8h (mist)

# CCF Hardener

## Safety Data Sheet

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

Triethanolamine (102-71-6)	
LD50 dermal rabbit	> 22000 mg/kg

Piperazine (110-85-0)	
LD50 oral rat	2600 mg/kg
LD50 dermal rabbit	8300 mg/kg

1-Piperazineethanamine (140-31-8)	
LD50 oral rat	2108 mg/kg
LD50 dermal rabbit	866 mg/kg

<b>Acute toxicity (oral)</b>	: Not classified.
<b>Acute toxicity (dermal)</b>	: Not classified.
<b>Acute toxicity (inhalation)</b>	: Not classified.
<b>Skin corrosion/irritation</b>	: Causes severe skin burns pH: 11.4
<b>Serious eye damage/irritation</b>	: Causes serious eye damage. pH: 11.4
<b>Respiratory or skin sensitization</b>	: May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	: Not classified.
<b>Carcinogenicity</b>	: Not classified.

Triethanolamine (102-71-6)	
IARC group	3 - Not classifiable

<b>Reproductive toxicity</b>	: Suspected of damaging fertility or the unborn child.
<b>STOT-single exposure</b>	: Not classified.
<b>STOT-repeated exposure</b>	: May cause damage to organs through prolonged or repeated exposure (if swallowed).
<b>Aspiration hazard</b>	: Not classified.

CCF Hardener	
Viscosity, kinematic (calculated value) (40 °C)	48.4 mm <sup>2</sup> /s @ 20 °C

<b>Symptoms/effects after inhalation</b>	: Causes burns to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled.
<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.
<b>Symptoms/effects after ingestion</b>	: May be harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.
<b>Other information</b>	: Likely routes of exposure: ingestion, inhalation, skin and eye.

## SECTION 12: Ecological information

### Toxicity

<b>Ecology - general</b>	: Harmful to aquatic life with long lasting effects.
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Triethanolamine (102-71-6)	
LC50 fish 1	11800 mg/l
EC50 Daphnia 1	1386 mg/l
LC50 fish 2	> 1000 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
ErC50 (algae)	169 mg/l
NOEC chronic crustacea	16 mg/l

Piperazine (110-85-0)	
LC50 fish 1	> 10000 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])

1-Piperazineethanamine (140-31-8)	
LC50 fish 1	1950 - 2460 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	32 mg/l (Exposure time: 48 h - Species: Daphnia magna)

# CCF Hardener

## Safety Data Sheet

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

<b>1-Piperazineethanamine (140-31-8)</b>	
LC50 fish 2	> 1000 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])

### Persistence and degradability

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

### Bioaccumulative potential

<b>CCF Hardener</b>	
Bioaccumulative potential	Not established.

<b>Triethanolamine (102-71-6)</b>	
BCF fish 1	< 3.9
Partition coefficient n-octanol/water	-2.53

<b>Piperazine (110-85-0)</b>	
BCF fish 1	0.3 - 3.9

<b>1-Piperazineethanamine (140-31-8)</b>	
BCF fish 1	(no bioaccumulation expected)
Partition coefficient n-octanol/water	-1.48

### Mobility in soil

<b>CCF Hardener</b>	
Ecology - soil	No additional information available.

### Other adverse effects

**Other information** : No other effects known.

Name	Product identifier	Ecotoxicity Classification Information
Poly[oxy(methyl-1,2-ethanediy)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (D230)	(CAS No) 9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Poly[oxy(methyl-1,2-ethanediy)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (D400)	(CAS No) 9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Triethanolamine	(CAS No) 102-71-6	Not classified
Piperazine	(CAS No) 110-85-0	Acute Aquatic Cat. 3
1-Piperazineethanamine	(CAS No) 140-31-8	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3

## SECTION 13: Disposal considerations

### Waste treatment methods

**Product/Packaging disposal recommendations** : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

## 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 : Polyoxypropylenediamine  
 Class (DOT/TDG) : 8 - Class 8 - Corrosive material 49 CFR 173.136  
 Packing group (DOT/TDG) : III

### 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 : Polyoxypropylenediamine  
 Class (IMDG) : 8 - Corrosive substances  
 Packing group (IMDG) : III

# CCF Hardener

## Safety Data Sheet

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

EmS-No. (1) : F-A, S-B  
 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 : Polyoxypropylenediamine  
 Class (IATA) : 8 - Corrosives  
 Packing group (IATA) : III  
 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>Poly[oxy(methyl-1,2-ethanediyl)], .alpha.-(2-aminomethylethyl)-.omega.-(2-aminomethylethoxy)- (9046-10-0)</b>	
EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).

<b>Propylene oxide (75-56-9)</b>	
Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	10000 lb
SARA Section 313 - Emission Reporting	0.1 %

### International regulations

No additional information available.

### US State regulations

 **WARNING** This product can expose you to Propylene oxide, which is known to the State of California to cause cancer. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov).

<b>Propylene oxide (75-56-9)</b>				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significant risk level (NSRL)
Yes	No	No	No	

<b>Triethanolamine (102-71-6)</b>
U.S. – Massachusetts – Right To Know List U.S. – New Jersey – Right to Know Hazardous Substance List U.S. – Pennsylvania – RTK (Right to Know) List

<b>Piperazine (110-85-0)</b>
U.S. – Massachusetts – Right To Know List U.S. – New Jersey – Right to Know Hazardous Substance List U.S. – Pennsylvania – RTK (Right to Know) List

<b>1-Piperazineethanamine (140-31-8)</b>
U.S. – Massachusetts – Right To Know List U.S. – New Jersey – Right to Know Hazardous Substance List U.S. – Pennsylvania – RTK (Right to Know) List

# CCF Hardener

## Safety Data Sheet

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

### Propylene oxide (75-56-9)

U.S. – Massachusetts – Right To Know List  
U.S. – New Jersey – Right to Know Hazardous Substance List  
U.S. – Pennsylvania – RTK (Right to Know) – Environmental Hazard List  
U.S. – Pennsylvania – RTK (Right to Know) – Special Hazardous Substances  
U.S. – Pennsylvania – RTK (Right to Know) List

### SECTION 16: Other information

**Date of issue** : 08/20/2018  
**Revision date** : 10/18/2023  
**Version** : EH-CCF-2023a  
**Other information** : None.