

# CLF 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: 11/24/2018

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Version: EH-CLF-2020a

### SECTION 1: Identification

#### Identification

**Product form** : Mixture  
**Product name** : CLF Hardener  
**Product code** : EH-CLF, EH-CLF-1, EH-CLF-2, EH-CLF-3, EH-CLF-4, EH-CLF-5, EH-CLF-6, EH-CLF-7, EH-CLF-8, EH-CLF-D, EH-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

##### 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

Acute Tox. 4 (Oral)  
Skin Corr. 1C  
Eye Dam. 1  
Skin Sens. 1  
Repr. 2  
Aquatic Acute 3  
Aquatic Chronic 3

#### Label elements

##### Hazard pictograms (GHS)



##### Signal word (GHS)

Danger

##### Hazard statements (GHS)

Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child. 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/vapours/spray. Wash hands 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 protective gloves/protective clothing/eye protection/face 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. Take off contaminated clothing and wash it before reuse. Store locked up. Dispose of contents/container to according to local, state, national and international regulations

#### Other hazards

No additional information available

#### Unknown acute toxicity

Not applicable

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### SECTION 3: Composition/information on ingredients

#### Substances

Not applicable

#### Mixtures

| Name   | Product identifier   | %       |
|--|----------------------|---------|
| Benzyl alcohol   | (CAS-No.) 100-51-6   | 30 - 60 |
| Isophoronediamine  | (CAS-No.) 2855-13-2  | 10 - 30 |
| 1,3-Cyclohexanedimethanamine   | (CAS-No.) 2579-20-6  | 10 - 30 |
| Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine | (CAS-No.) 60112-98-3 | 5 - 15  |
| 4-tert-Butylphenol   | (CAS-No.) 98-54-4    | 5 - 15  |

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.
- 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** : 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).

### 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.

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### 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>Benzyl alcohol (100-51-6)</b>   |                |        |
| AIHA   | WEEL TWA (ppm) | 10 ppm |
| <b>1,3-Cyclohexanedimethanamine (2579-20-6)</b>  |                |        |
| Not applicable   |                |        |
| <b>Isophoronediamine (2855-13-2)</b>   |                |        |
| Not applicable   |                |        |
| <b>Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine (60112-98-3)</b> |                |        |
| Not applicable   |                |        |
| <b>4-tert-Butylphenol (98-54-4)</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.

#### Respiratory protection

: 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.

### Environmental exposure controls

: Avoid release to the environment.

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**Other information** : 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

**Physical state** : Liquid  
**Appearance** : Clear  
**Colour** : Clear, light amber  
**Odour** : Ammonia  
**Odour threshold** : No data available  
**pH** : 10.59  
**Melting point** : No data available  
**Freezing point** : No data available  
**Boiling point** : > 400 °F (204 °C) (760 mmHg) estimated based on similar product.  
**Flash point** : > 200 °F (93 °C) estimated based on similar product.  
**Relative evaporation rate (butylacetate=1)** : No data available  
**Flammability (solid, gas)** : No data available  
**Vapour pressure** : < 1 mmHg @ 20 °C estimated based on ingredient data  
**Relative vapour density at 20 °C** : No data available  
**Relative density** : 1.01 (water = 1)  
**Solubility** : Appreciable.  
**Partition coefficient n-octanol/water** : No data available  
**Auto-ignition temperature** : No data available  
**Decomposition temperature** : No data available  
**Viscosity, kinematic** : 276.2 mm<sup>2</sup>/s @ 40 °C  
**Viscosity, dynamic** : No data available  
**Explosive limits** : No data available  
**Explosive properties** : No data available  
**Oxidising properties** : No data available

**Other information**  
**VOC content** : 31.5 g/l  
**Bulk density** : 8.42 lb/gal (1.01 kg/L)

### SECTION 10: Stability and reactivity

**Reactivity** : No dangerous reactions known under normal conditions of use.  
**Chemical stability** : Stable under normal conditions.  
**Possibility of hazardous reactions** : 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.  
**Conditions to avoid** : Heat. Direct sunlight. Incompatible materials.  
**Incompatible materials** : Acids. Oxidizing materials. Halogenated compounds.  
**Hazardous decomposition products** : May include, and are not limited to: oxides of carbon. Toxic fumes. Toxic gases. Nitrogen oxides. Amines. Ammonia. Nitric acid. Aldehydes.

### SECTION 11: Toxicological information

#### Information on toxicological effects

| Benzyl alcohol (100-51-6) |                          |
|---------------------------|--------------------------|
| LD50 oral rat             | 1620 mg/kg               |
| LC50 inhalation rat       | > 4.18 mg/l/4h (aerosol) |

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

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| <b>Isophoronediamine (2855-13-2)</b> |                     |
|--------------------------------------|---------------------|
| LD50 oral rat                        | 1030 mg/kg          |
| LD50 dermal rabbit                   | > 2000 mg/kg        |
| LC50 inhalation rat                  | > 5.01 mg/l/4h mist |

| <b>4-tert-Butylphenol (98-54-4)</b> |   |
|-------------------------------------|---|
| LD50 oral rat                       | > 2000 mg/kg  |
| LD50 dermal rat                     | No data. Intraperitoneal – mouse – 78 mg/kg.                                      |
| LC50 inhalation rat                 | 5.6 mg/l Remarks: Nutritional and Metabolic: Weight loss or decreased weight gain |

|  |  |
|--|--|
| <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.<br>pH: 10.59               |
| <b>Serious eye damage/irritation</b>     | : Causes serious eye damage.<br>pH: 10.59              |
| <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>             | : Suspected of damaging fertility or the unborn child. |
| <b>STOT-single exposure</b>              | : Not classified.                                      |
| <b>STOT-repeated exposure</b>            | : Not classified.                                      |
| <b>Aspiration hazard</b>                 | : Not classified.                                      |

| <b>CLF Hardener</b>                             |                                  |
|---|----------------------------------|
| Viscosity, kinematic (calculated value) (40 °C) | 276.2 mm <sup>2</sup> /s @ 40 °C |

|  |  |
|--|--|
| <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. |
| <b>Symptoms/effects after ingestion</b>    | : 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

**Ecology - general** : 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 Daphnia 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])  |

| <b>Isophoronediamine (2855-13-2)</b> |   |
|--------------------------------------|---|
| EC50 Daphnia 1                       | 14.6 - 21.5 mg/l (Exposure time: 48 h - Species: Daphnia magna [semi-static]) |

| <b>4-tert-Butylphenol (98-54-4)</b> |  |
|-------------------------------------|--|
| LC50 fish 1                         | 4.71 - 5.62 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through]) |
| EC50 Daphnia 1                      | 3.9 mg/l (Exposure time: 48 h - Species: Daphnia magna)                              |
| LC50 fish 2                         | 6.9 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])                   |
| EC50 Daphnia 2                      | 3.4 - 4.5 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])               |

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### Persistence and degradability

| CLF Hardener                  |                  |
|-------------------------------|------------------|
| Persistence and degradability | Not established. |

### Bioaccumulative potential

| CLF Hardener              |                  |
|---------------------------|------------------|
| Bioaccumulative potential | Not established. |

| Benzyl alcohol (100-51-6)             |     |
|---------------------------------------|-----|
| Partition coefficient n-octanol/water | 1.1 |

| Isophoronediamine (2855-13-2)         |                 |
|---------------------------------------|-----------------|
| Partition coefficient n-octanol/water | 0.79 (at 23 °C) |

| 4-tert-Butylphenol (98-54-4)          |          |
|---------------------------------------|----------|
| BCF fish 1                            | 34 - 240 |
| Partition coefficient n-octanol/water | 2.44     |

### Mobility in soil

| CLF Hardener   |                                      |
|----------------|--------------------------------------|
| Ecology - soil | No additional information available. |

### Other adverse effects

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

| Name   | Product identifier  | Ecotoxicity Classification Information       |
|--|---------------------|--|
| 1,3-cyclohexanedimethanamine   | (CAS No) 2579-20-6  | Aquatic Acute Cat. 3, Aquatic Chronic Cat. 3 |
| Benzyl alcohol   | (CAS No) 100-51-6   | Not classified.                              |
| Isophoronediamine  | (CAS No) 2855-13-2  | Aquatic Acute Cat. 3, Aquatic Chronic Cat. 3 |
| Phenol, 4,4'-(1-methylethylidene) bis-, polymer with 2-(chromethyl) oxirane and 1,3-cyclohexanedimethanamine | (CAS No) 60112-98-3 | Reference 1,3-cyclohexanedimethanamine       |
| p-tert-Butylphenol   | (CAS No) 98-54-4    | Aquatic Acute Cat. 2, Aquatic Chronic Cat. 2 |

## 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 : Isophoronediamine  
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 : Isophoronediamine  
Class (IMDG) : 8 - Corrosive substances  
Packing group (IMDG) : III  
EmS-No. (1) : F-A, S-B  
Marine pollutant : No

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### 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 : Isophoronediamine  
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.

#### Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine (60112-98-3)

|                          |   |
|--------------------------|---|
| EPA TSCA Regulatory Flag | PMN - PMN - indicates a commenced PMN substance.<br>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

#### Benzyl alcohol (100-51-6)

U.S. - Massachusetts - Right To Know List  
U.S. - Pennsylvania - RTK (Right to Know) List

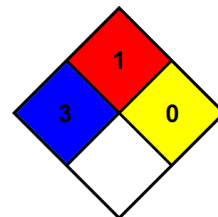
#### Isophoronediamine (2855-13-2)

U.S. - New Jersey - Right to Know Hazardous Substance List

## SECTION 16: Other information

Date of issue : 11/24/2018  
Revision date : 02/11/2020  
Other information : None.

NFPA health hazard : 3  
NFPA fire hazard : 1  
NFPA reactivity : 0



Hazard Rating

Health : 3 Serious Hazard  
Flammability : 1 Slight Hazard  
Physical : 0 Minimal Hazard

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