

CLF 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

Revision date: 12/09/2021

Version: CLF-2021a

SECTION 1: Identification

Identification

Product form : Mixture
Product name : CLF Hardener
Product code : CLF, CLF-1, CLF-2, CLF-3, CLF-4, CLF-4.5, CLF-5, CLF-6, CLF-7, CLF-8.

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

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
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

Unknown acute toxicity

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

CLF Hardener

Safety Data Sheet

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

SECTION 3: Composition/information on ingredients

Substances

Not applicable

Mixtures

Name	Product identifier	%
Benzyl alcohol	(CAS-No.) 100-51-6	15 – 40
Trimethylhexamethylenediamines	(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 (CO₂), 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).

CLF 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 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

CLF Hardener
No additional information available
Benzyl alcohol (100-51-6)
No additional information available
1,3-Cyclohexanedimethanamine (2579-20-6)
No additional information available
Phenol, 4,4'-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane and 1,3-cyclohexanedimethanamine (60112-98-3)
No additional information available
Trimethylhexamethylenediamines (25620-58-0)
No additional information available
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)
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.

CLF Hardener

Safety Data Sheet

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

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.
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	: No data available
Colour	: Clear
Odour	: ammonia-like
Odour threshold	: No data available
pH	: Expected between 11.0 – 12.5 based on ingredient data
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 200 °F (93 °C) (estimated based similar product.)
Relative evaporation rate (butylacetate=1)	: No data available
Flammability (solid, gas)	: No data available
Vapour pressure	: No data available
Relative vapour density at 20 °C	: No data available
Relative density	: 1.02 (water = 1)
Solubility	: Water: Appreciable.
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 264 mm ² /s
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

Other information

VOC content	: 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)
Bulk density	: 8.5 lb/gal (1.02 kg/L)

SECTION 10: Stability and reactivity

Reactivity	: 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.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: Heat. Incompatible materials. Water. Moisture.

CLF Hardener

Safety Data Sheet

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

Incompatible materials	: 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.
Hazardous decomposition products	: 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

Benzyl alcohol (100-51-6)	
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)

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

Trimethylhexamethylenediamines (25620-58-0)	
LD50 oral rat	910 mg/kg

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

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

1,3-Cyclohexanedimethanamine (2579-20-6)	
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)

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

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.
Other information	: Likely routes of exposure: ingestion, inhalation, skin and eye.

CLF Hardener

Safety Data Sheet

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

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.

Benzyl alcohol (100-51-6)	
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'
1,3-Cyclohexanedimethanamine (2579-20-6)	
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

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
Trimethylhexamethylenediamines (25620-58-0)	
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.
Trimethylhexamethylenediamines	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.

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.

CLF Hardener

Safety Data Sheet

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

Proper Shipping Name - Addition : Trimethylhexamethylenediamines
 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 : Trimethylhexamethylenediamines
 Class (IMDG) : 8 - Corrosive substances
 Packing group (IMDG) : III
 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 : Trimethylhexamethylenediamines
 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)

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

Listed on the Canadian NDSL (Non-Domestic Substances List)

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. XU - XU - indicates a substance exempt from reporting under the Chemical Data Reporting Rule, (40 CFR 711).
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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)

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).
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International regulations

No additional information available.

US State regulations

No additional information available

Benzyl alcohol (100-51-6)

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

Trimethylhexamethylenediamines (25620-58-0)

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

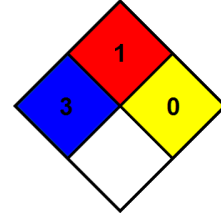
CLF Hardener

Safety Data Sheet

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

SECTION 16: Other information

Issue date : 02/12/2028
Revision date : 12/09/2021
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

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.