

Entropy Resins® High Biobased Fast Laminating 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: 10/26/2018

Revision date: 10/18/2023

Version: CEH-ONF-2023a

SECTION 1: Identification

Identification

Product form : Mixture
Product name : Entropy Resins® High Biobased Fast Laminating Hardener
Product code : CEH-ONF, CEH-ONF-QT, CEH-ONF-2QT, CEH-ONF-GAL, CEH-ONF-2.5GAL, CEH-ONF-5GAL, CEH-ONF-HD, CEH-ONF-D, CEH-ONF-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

Acute Tox. 4 (Oral)
Skin Corr. 1B
Eye Dam. 1
Resp. Sens. 1
Skin Sens. 1
Repr. 2
STOT RE 1
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. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of damaging fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure if inhaled. 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. 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. 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

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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

Other hazards

No additional information available

Unknown acute toxicity

Not applicable

SECTION 3: Composition/information on ingredients

Substances

Not applicable

Mixtures

Name	Product identifier	%
Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-, reaction products with bisphenol A diglycidyl ether homopolymer	(CAS-No.) 68609-08-5	10 - 50
1,3-Cyclohexanedimethanamine	(CAS-No.) 2579-20-6	10 - 30
Cashew, nutshell liquid	(CAS-No.) 8007-24-7	10 - 30
Benzyl alcohol	(CAS-No.) 100-51-6	1 - 30
Isophoronediamine	(CAS-No.) 2855-13-2	1 - 30
Triethanolamine	(CAS-No.) 102-71-6	1 - 5
Piperazine	(CAS-No.) 110-85-0	0.1 - 1
1-Piperazineethanamine	(CAS-No.) 140-31-8	0.1 - 0.5

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** : 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.

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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.

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

Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-, reaction products with bisphenol A diglycidyl ether homopolymer (68609-08-5)
Not applicable
1,3-Cyclohexanedimethanamine (2579-20-6)
Not applicable
Cashew, nutshell liquid (8007-24-7)
Not applicable

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Benzyl alcohol (100-51-6)		
AIHA	WEEL TWA (ppm)	10 ppm
Isophoronediamine (2855-13-2)		
Not applicable		
Triethanolamine (102-71-6)		
ACGIH	ACGIH TWA (mg/m ³)	5 mg/m ³
Piperazine (110-85-0)		
ACGIH	ACGIH TWA (mg/m ³)	0.03 mg/m ³ (inhalable fraction and vapor)
1-Piperazineethanamine (140-31-8)		
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.
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	: Amber
Odour	: Ammonia
Odour threshold	: No data available
pH	: 10.96
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	: 0.98 (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	: 118.3 mm ² /s @ 40 °C / 104 °F
Viscosity, dynamic	: No data available
Explosive limits	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available

Other information

VOC content	: 21.0 g/l (ONE/ONF)
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Bulk density : 8.19 lb/gal (0.97 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. Nitrosamines.

SECTION 11: Toxicological information

Information on toxicological effects

1,3-Cyclohexanedimethanamine (2579-20-6)	
LD50 oral rat	700-780 mg/kg
LD50 dermal rabbit	1700 mg/kg
Cashew, nutshell liquid (8007-24-7)	
LD50 oral rat	2000 mg/kg
Benzyl alcohol (100-51-6)	
LD50 oral rat	1620 mg/kg
LC50 inhalation rat	> 4.18 mg/l/4h (aerosol)
Isophoronediamine (2855-13-2)	
LD50 oral rat	1030 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 5.01 mg/l/4h mist
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	2097 mg/kg
LD50 dermal rabbit	866 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: 12
Serious eye damage/irritation : Causes serious eye damage.
pH: 12
Respiratory or skin sensitization : May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified.
Carcinogenicity : Not classified.

Triethanolamine (102-71-6)	
IARC group	3 - Not classifiable
Reproductive toxicity	: Suspected of damaging fertility or the unborn child.
STOT-single exposure	: Not classified.
STOT-repeated exposure	: Causes damage to organs through prolonged or repeated exposure if inhaled

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Aspiration hazard : Not classified.

ONF Hardener	
Viscosity, kinematic (calculated value) (40 °C)	141.2 mm ² /s @ 40 °C

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 : 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 : 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 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])

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

Triethanolamine (102-71-6)	
LC50 fish 1	10600 - 13000 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
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)
LC50 fish 2	> 1000 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])

Persistence and degradability

ONF Hardener	
Persistence and degradability	Not established.

Bioaccumulative potential

ONF 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 / 73 °F)

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

Piperazine (110-85-0)	
BCF fish 1	0.3 - 3.9

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

Mobility in soil

ONF Hardener	
Ecology - soil	No additional information available.

Other adverse effects

Other information : No other effects known.

Name	Product identifier	Ecotoxicity Classification Information
Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-, reaction products with bisphenol A diglycidyl ether homopolymer	(CAS No) 68609-08-5	No data available.
1,3-cyclohexanedimethanamine	(CAS-No.) 2579-20-6	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Cashew, nutshell liquid	(CAS-No.) 8007-24-7	Acute Aquatic 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
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 : 1,3-cyclohexanedimethanamine
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 : 1,3-cyclohexanedimethanamine
Class (IMDG) : 8 - Corrosive substances
Packing group (IMDG) : III
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 : 1,3-cyclohexanedimethanamine
Class (IATA) : 8 - Corrosives
Packing group (IATA) : III
Marine pollutant : No

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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.

Cyclohexanemethanamine, 5-amino-1,3,3-trimethyl-, reaction products with bisphenol A diglycidyl ether homopolymer (68609-08-5)	
EPA TSCA Regulatory Flag	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

California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

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
Ethanol, 2,2',2''-nitrioltris- (102-71-6)
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
Piperazine (110-85-0)
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
1-Piperazineethanamine (140-31-8)
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

SECTION 16: Other information

Date of issue	: 10/26/2018
Revision date	: 10/18/2023
Version	: CEH-ONF-2023a
Other information	: None.

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