

PRO-SET® HTP-284 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: 03/19/2018

Revision date: 05/15/2018

Version: HTP-284-2018b

SECTION 1: Identification

Identification

Product form : Mixture
Product name : PRO-SET® HTP-284 Hardener
Product code : HTP-284, HTP-284-1, HTP-284-2, HTP-284-3, HTP-284-4, HTP-284-5

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

Supplier

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

Emergency telephone number

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

SECTION 2: Hazard(s) identification

Classification of the substance or mixture

Acute Tox. 4 (Oral)
Acute Tox. 4 (Dermal)
Skin Corr. 1B
Eye Dam. 1
Skin Sens. 1
Carc. 2
STOT SE 3
STOT RE 2
Aquatic Acute 2
Aquatic Chronic 2

Label elements

Hazard pictograms (GHS)



GHS05

GHS07

GHS08

GHS09

Signal word (GHS)

Danger

Hazard statements (GHS)

Harmful if swallowed or in contact with skin. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of causing cancer. May cause respiratory irritation. May cause damage to organs through prolonged or repeated exposure (oral). Toxic 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, forearms and face thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. 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 exposed or concerned: Get medical advice/attention. If swallowed: rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. 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. Collect spillage. Store in a well-ventilated place. Keep container tightly closed. Store locked up. 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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Other hazards

No additional information available

Unknown acute toxicity

Not applicable

SECTION 3: Composition/information on ingredients

Substances

Not applicable

Mixtures

Name	Product identifier	%
Diethylenetriamine-bisphenol A-epichlorohydrin polymer	(CAS-No.) 31326-29-1	15 - 40
1,3-Cyclohexanedimethanamine	(CAS-No.) 2579-20-6	10 - 30
Cyclohexanamine, 4,4'-methylenebis-	(CAS-No.) 1761-71-3	10 - 30
Diethylenetriamine	(CAS-No.) 111-40-0	7 - 13
1H-Imidazole, 2-ethyl-4-methyl-	(CAS-No.) 931-36-2	1 - 5
4-Methylimidazole	(CAS-No.) 822-36-6	0.1 - 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. Refer to Section 15 for additional information regarding this CBI claim.

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/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/doctor.

Most important symptoms and effects, both acute and delayed

- Symptoms/effects after inhalation** : May cause respiratory irritation. May cause burns.
- Symptoms/effects after skin contact** : Causes severe skin burns. Harmful in contact with skin. 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 gastrointestinal irritation, nausea, vomiting and diarrhea. 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: Firefighting 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. Oxides of nitrogen. Amines. Ammonia. Nitric acid. Nitrosamines. Irritating fumes. 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.

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 : DO NOT spray apply or heat this product. 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/vapours/spray. Do not swallow. Handle and open container with care. Do not eat, drink or smoke when using this product. Ensure adequate ventilation. 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. Store locked up.

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

SECTION 8: Exposure controls/personal protection

Control parameters

Diethylenetriamine-bisphenol A-epichlorohydrin polymer (31326-29-1)		
ACGIH	ACGIH TWA (mg/m ³)	Refer to Diethylenetriamine
1,3-Cyclohexanedimethanamine (2579-20-6)		
Not applicable		
Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)		
Not applicable		
Diethylenetriamine (111-40-0)		
ACGIH	ACGIH TWA (ppm)	1 ppm (skin)
1H-Imidazole, 2-ethyl-4-methyl- (931-36-2)		
Not applicable		
4-Methylimidazole (822-36-6)		
Not applicable		

Exposure controls

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

Hand protection : Wear suitable gloves resistant to chemical penetration.

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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	: No data available
Colour	: Slight Amber
Odour	: ammonia
Odour threshold	: No data available
pH	: 11.86
Melting point	: No data available
Freezing point	: No data available
Boiling point	: > 400 °F / 204 °C [Estimated based similar product]
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	: < 1 mm Hg @ 20 °C [Estimated based on ingredient data]
Relative vapour density at 20 °C	: No data available
Relative density	: 1.003
Solubility	: No data available
Partition coefficient n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: 239.3 mm ² /s @ 20 °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	: 2.06 g/l [Mixed epoxy resin and hardener - HTP-182 / HTP-284 (ASTM 2369-07)]
Bulk density	: 8.37 lb/gal / 1.003 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.
Conditions to avoid	: Heat. Incompatible materials.
Incompatible materials	: Acids. Oxidizing materials. Halogenated compounds. Nitrosating agents. Sodium hypochlorite.
Hazardous decomposition products	: May include, and are not limited to: oxides of carbon. Oxides of nitrogen. Amines. Ammonia. Nitric acid. Nitrosamines.

SECTION 11: Toxicological information

Information on toxicological effects

Diethylenetriamine-bisphenol A-epichlorohydrin polymer (31326-29-1)

LD50 oral rat	Refer to Diethylenetriamine data; ATPE (500 mg/kg)
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Diethylenetriamine-bisphenol A-epichlorohydrin polymer (31326-29-1)	
LD50 dermal rabbit	Refer to Diethylenetriamine data; ATPE (1100 mg/kg)
LC50 inhalation rat	No data available. Refer to Diethylenetriamine data.

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

Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)	
LD50 oral rat	380 mg/kg
LD50 dermal rabbit	> 1000 mg/kg

Diethylenetriamine (111-40-0)	
LD50 oral rat	1620 mg/kg
LD50 dermal rabbit	1090 mg/kg
LC50 inhalation rat	0.07 - 0.3 mg/l/4h aerosol/mist

1H-Imidazole, 2-ethyl-4-methyl- (931-36-2)	
LD50 oral rat	731 - 1000 mg/kg
LD50 dermal rabbit	> 400 mg/kg

4-Methylimidazole (822-36-6)	
LD50 oral rat	350 - 751 mg/kg
LD50 dermal rabbit	440 mg/kg

- Acute toxicity (oral)** : Harmful if swallowed.
Acute toxicity (dermal) : Harmful in contact with skin.
Acute toxicity (inhalation) : Not classified.
Skin corrosion/irritation : Causes severe skin burns.
pH: 11.86
Serious eye damage/irritation : Causes serious eye damage.
pH: 11.86
Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified.
Carcinogenicity : Suspected of causing cancer.

4-Methylimidazole (822-36-6)	
IARC group	2B - Possibly carcinogenic to humans
In OSHA Hazard Communication Carcinogen list	Yes

- Reproductive toxicity** : Not classified.
STOT-single exposure : May cause respiratory irritation.
STOT-repeated exposure : May cause damage to organs through prolonged or repeated exposure (oral).
Aspiration hazard : Not classified.

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Viscosity, kinematic (calculated value)	239.3 mm ² /s @ 20 °C

- Symptoms/effects after inhalation** : May cause respiratory irritation. May cause burns.
Symptoms/effects after skin contact : Causes severe skin burns. Harmful in contact with skin. 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 gastrointestinal irritation, nausea, vomiting and diarrhea. 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** : Toxic to aquatic life with long lasting effects.

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Diethylenetriamine (111-40-0)	
LC50 fish 1	248 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [static])
EC50 Daphnia 1	16 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	1014 mg/l (Exposure time: 96 h - Species: Poecilia reticulata [semi-static])

4-Methylimidazole (822-36-6)	
EC50 Daphnia 1	180 mg/l (Exposure time: 48 h - Species: Daphnia magna)

Ingredient	CAS#	Ecotoxicity Classification Information
Diethylenetriamine-bisphenol A-epichlorohydrin polymer	31326-29-1	Not classified
1,3-Cyclohexanedimethanamine	2579-20-6	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Cyclohexanamine, 4,4'-methylenebis-	1761-71-3	Acute Aquatic Cat. 2; Chronic Aquatic Cat. 2
Diethylenetriamine	111-40-0	Not classified
1H-Imidazole, 2-ethyl-4-methyl-	931-36-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
4-Methylimidazole	822-36-6	Not classified

Persistence and degradability

PRO-SET® HTP-284 Hardener	
Persistence and degradability	Not established.

Bioaccumulative potential

PRO-SET® HTP-284 Hardener	
Bioaccumulative potential	Not established.

Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)	
Partition coefficient n-octanol/water	2.03

Diethylenetriamine (111-40-0)	
BCF fish 1	0.3 - 1.7
Partition coefficient n-octanol/water	-1.3

4-Methylimidazole (822-36-6)	
Partition coefficient n-octanol/water	0.35 (at 25 °C)

Mobility in soil

PRO-SET® HTP-284 Hardener	
Ecology - soil	No additional information available.

Other adverse effects

Other information : No other effects known.

SECTION 13: Disposal considerations

Waste treatment methods

Product/Packaging disposal recommendations : Dispose in a safe manner in accordance with local/national regulations.

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

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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
EmS-No. : F-A, S-B
Marine pollutant : Yes

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 : Yes

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.

Diethylenetriamine-bisphenol A-epichlorohydrin polymer (31326-29-1)


EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under Chemical Data Reporting Rule (formerly the Inventory Update Reporting Rule), i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 711).
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Canada WHMIS Confidential Business Information (CBI): No data available

International regulations

No additional information available

US State regulations

 **WARNING** This product can expose you to 4-Methylimidazole, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

4-Methylimidazole (822-36-6)

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	29 µg/day

Diethylenetriamine (111-40-0)

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

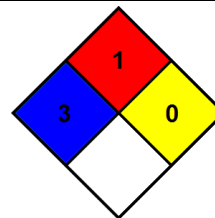
Date of issue : 03/19/2018
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Other information : None.

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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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