

# PRO-SET® HTP-280 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: 10/27/2020

Version: HTP-280-2020a

### SECTION 1: Identification

#### Identification

**Product form** : Mixture  
**Product name** : PRO-SET® HTP-280 Hardener  
**Product code** : HTP-280, HTP-280-1, HTP-280-2, HTP-280-3, HTP-280-4, HTP-280-5

#### 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](http://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)  
Skin Corr. 1B  
Eye Dam. 1  
Skin Sens. 1  
Carc. 2  
STOT RE 2  
Aquatic Acute 3  
Aquatic Chronic 2

#### 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 causing cancer. 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. 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 IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a poison center/doctor. Collect spillage. 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

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

### Unknown acute toxicity

Not applicable

## SECTION 3: Composition/information on ingredients

### Substances

Not applicable

### Mixtures

Name	Product identifier	%
Isophoronediamine	(CAS-No.) 2855-13-2	45 - 70
Cyclohexanamine, 4,4'-methylenebis-	(CAS-No.) 1761-71-3	30 - 60
1H-Imidazole, 2-ethyl-4-methyl-	(CAS-No.) 931-36-2	1 - 5
4-Methylimidazole	(CAS-No.) 822-36-6	0.1 -1.0

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** : 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 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).

## 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.

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

### 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

: 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. 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

<b>Isophoronediamine (2855-13-2)</b>
Not applicable

<b>Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)</b>
Not applicable

<b>1H-Imidazole, 2-ethyl-4-methyl- (931-36-2)</b>
Not applicable

<b>4-Methylimidazole (822-36-6)</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.

### Other information

: Handle in accordance with good industrial hygiene and safety procedures. Do not eat, drink or smoke when using this product.

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

### 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	: 11.74
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	: 0.94
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	: 36.1 mm <sup>2</sup> /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	: 1.28 g/l [Mixed epoxy resin and hardener - HTP-180 / HTP-280 (ASTM 2369-07)]
Bulk density	: 7.85 lb/gal / 0.94 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

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

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

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

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

<b>1H-Imidazole, 2-ethyl-4-methyl- (931-36-2)</b>	
LD50 dermal rabbit	> 400 mg/kg

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

<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. pH: 11.74
<b>Serious eye damage/irritation</b>	: Causes serious eye damage. pH: 11.74
<b>Respiratory or skin sensitization</b>	: May cause an allergic skin reaction.
<b>Germ cell mutagenicity</b>	: Not classified.
<b>Carcinogenicity</b>	: Suspected of causing cancer.

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

<b>Reproductive toxicity</b>	: Not classified.
<b>STOT-single exposure</b>	: Not classified.
<b>STOT-repeated exposure</b>	: May cause damage to organs through prolonged or repeated exposure (oral).
<b>Aspiration hazard</b>	: Not classified.

<b>PRO-SET® HTP-280 Hardener</b>	
Viscosity, kinematic (calculated value)	36.1 mm <sup>2</sup> /s @ 20 °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 gastrointestinal irritation, nausea, vomiting and diarrhea. 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** : Toxic to aquatic life with long lasting effects.

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

Ingredient	CAS#	Ecotoxicity Classification Information
Isophoronediamine	2855-13-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Cyclohexanamine, 4,4'-methylenebis-	1761-71-3	Acute Aquatic Cat. 2; Chronic Aquatic Cat. 2
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

<b>PRO-SET® HTP-280 Hardener</b>	
Persistence and degradability	Not established.

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

### Bioaccumulative potential

<b>PRO-SET® HTP-280 Hardener</b>	
Bioaccumulative potential	Not established.
<b>Isophoronediamine (2855-13-2)</b>	
Partition coefficient n-octanol/water	0.79 (at 23 °C)
<b>Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)</b>	
Partition coefficient n-octanol/water	2.03
<b>4-Methylimidazole (822-36-6)</b>	
Partition coefficient n-octanol/water	0.35 (at 25 °C)

### Mobility in soil

<b>PRO-SET® HTP-280 Hardener</b>	
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 : Methylenebis(cyclohexanamine, 4,4'-  
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  
Proper Shipping Name (IMDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S.  
Proper Shipping Name - Addition : Methylenebis(cyclohexanamine, 4,4'-  
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 : Methylenebis(cyclohexanamine, 4,4'-  
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.

# PRO-SET® HTP-280 Hardener

## Safety Data Sheet

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

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.

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](http://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

Isophoronediamine (2855-13-2)
U.S. - New Jersey - Right to Know Hazardous Substance List

## SECTION 16: Other information

Date of issue : 03/19/2018

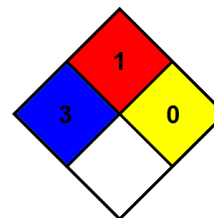
Revision date : 10/27/2020

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

*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.*