

# PRO-SET® M2046 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: 06/01/2015

Revision date: 01/25/2019

Version: M2046-2019a

### SECTION 1: Identification

#### Identification

**Product form** : Mixtures  
**Product name** : PRO-SET® M2046 Hardener  
**Product code** : M2046, M2046-1, M2046-2, M2046-3, M2046-4, M2046-5

#### 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

##### Manufacturer

Gougeon Brothers, Inc  
100 Patterson Ave.  
Bay City, MI 48706 - U.S.A.  
T 866-937-8797 or 989-684-7286  
[www.westsystem.com](http://www.westsystem.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 if swallowed. Harmful to aquatic life. 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 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. 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.

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### Unknown acute toxicity

No additional information available.

## SECTION 3: Composition/information on ingredients

### Substance

Not applicable

### Mixtures

Name	Product identifier	HPR %
Formaldehyde, polymer with benzenamine, hydrogenated	(CAS No) 135108-88-2	15 - 40
Cyclohexanamine, 4,4'-methylenebis-	(CAS No) 1761-71-3	10 - 30
Propylene glycol diamine, 2-amino-, diether with Propylene	(CAS No) 9046-10-0	10 - 30
Isophorone diamine	(CAS No) 2855-13-2	10 - 30
1H-Imidazole, 2-ethyl-4-methyl-	(CAS No) 931-36-2	1 - 5
4-Methylimidazole	(CAS No) 822-36-6	0.1 - 1

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 breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.
- First-aid measures after skin contact** : IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or doctor/physician.
- First-aid measures after eye contact** : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. Get medical attention immediately.
- First-aid measures after ingestion** : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Immediately call a POISON CENTER or doctor/physician.

### Most important symptoms and effects, both acute and delayed

- Symptoms/injuries after inhalation** : May cause respiratory tract irritation.
- Symptoms/injuries after skin contact** : Causes severe burns. Symptoms may include redness, pain, blisters. May cause an allergic skin reaction.
- Symptoms/injuries 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/injuries after ingestion** : Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. May cause stomach distress, nausea or vomiting.

### Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS 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, nitrogen oxides, amines, ammonia, nitric acid, nitrosamines. 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 reaction known under conditions of normal 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 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

: Stop leak if safe to do so. Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE). Do not absorb in sawdust, paper, cloth or other combustible absorbents.

##### Methods for cleaning up

: Scoop up material and place in a disposal container. Provide ventilation.

#### Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

### SECTION 7: Handling and storage

#### Precautions for safe handling

##### Precautions for safe handling

: 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. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product. Use personal protective equipment as required. 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

: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking. Contaminated work clothing should not be allowed out of the workplace.

#### 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. Protect from moisture. Storage temperature : 40°F (4°C) - 90°F (32°C).

### SECTION 8: Exposure controls/personal protection

#### Control parameters

<b>Formaldehyde, polymer with benzenamine, hydrogenated (135108-88-2)</b>
Not applicable
<b>Cyclohexanamine, 4,4'-methylenebis- (1761-71-3)</b>
Not applicable
<b>Propylene glycol diamine, 2-amino-, diether with Propylene (9046-10-0)</b>
Not applicable
<b>Isophorone diamine (2855-13-2)</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

: Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

##### Hand protection

: Wear chemically resistant protective gloves.

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<b>Eye protection</b>	: Wear approved eye protection (properly fitted dust- or splash-proof chemical safety goggles) and face protection (face shield).
<b>Skin and body protection</b>	: Wear suitable protective clothing.
<b>Respiratory protection</b>	: 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.
<b>Environmental exposure controls</b>	: Maintain levels below Community environmental protection thresholds.
<b>Other information</b>	: Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

### SECTION 9: Physical and chemical properties

#### Information on basic physical and chemical properties

<b>Physical state</b>	: Liquid
<b>Appearance</b>	: No data available
<b>Colour</b>	: Amber
<b>Odour</b>	: Ammonia-like
<b>Odour threshold</b>	: No data available
<b>pH</b>	: 11.5
<b>Melting point</b>	: No data available
<b>Freezing point</b>	: No data available
<b>Boiling point</b>	: > 400 °F (204 °C) Estimated based on similar product.
<b>Flash point</b>	: > 200 °F (93 °C) Estimated based on similar product.
<b>Relative evaporation rate (butylacetate=1)</b>	: No data available
<b>Flammability (solid, gas)</b>	: Non flammable.
<b>Vapour pressure</b>	: < 1 mm Hg @ 68 °F (20 °C) Estimated based on ingredient data.
<b>Relative vapour density at 20 °C</b>	: No data available
<b>Relative density</b>	: 0.96
<b>Solubility</b>	: No data available
<b>Partition coefficient n-octanol/water</b>	: No data available
<b>Auto-ignition temperature</b>	: No data available
<b>Decomposition temperature</b>	: No data available
<b>Viscosity, kinematic</b>	: 88.5 mm <sup>2</sup> /s @ 20 °C (68 °F)
<b>Viscosity, dynamic</b>	: No data available
<b>Explosive limits</b>	: No data available
<b>Explosive properties</b>	: No data available
<b>Oxidising properties</b>	: No data available
<b>Other information</b>	
<b>VOC content</b>	: M1038 / M2046: 3.13 g/L (0.03 lbs/gal); M1002 / M2046: 4.55 g/L (0.04 lbs/gal); XR29A / M2046: 17.8 g/L (0.15 lbs/gal); M1042 / M2046: 5.97 g/L (0.05 lbs/gal)
<b>Bulk density</b>	: 8 lb/gal (0.96 kg/L)

### SECTION 10: Stability and reactivity

<b>Reactivity</b>	: No dangerous reaction known under conditions of normal use.
<b>Chemical stability</b>	: Stable under normal storage conditions.
<b>Possibility of hazardous reactions</b>	: No dangerous reaction known under conditions of normal use. A mass of more than one pound of product plus an epoxy resin will cause irreversible polymerization with significant heat buildup and pressure.
<b>Conditions to avoid</b>	: Heat. Incompatible materials.
<b>Incompatible materials</b>	: Acids. Oxidizing materials. Halogenated compounds. Nitrosating agents. Sodium hypochlorite
<b>Hazardous decomposition products</b>	: May include, and are not limited to: oxides of carbon, nitrogen oxides, amines, ammonia, nitric acid, nitrosamines.

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### SECTION 11: Toxicological information

#### Information on toxicological effects

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

Propylene glycol diamine, 2-amino-, diether with Propylene (9046-10-0)	
LD50 oral rat	2855 mg/kg
LD50 dermal rabbit	2980 mg/kg
LC50 inhalation rat	> 0.74 mg/l/8h

Isophorone diamine (2855-13-2)	
LD50 oral rat	1030 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 5.01 mg/l/4h

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

<b>Acute toxicity (oral)</b>	: Oral: 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.
<b>Serious eye damage/irritation</b>	: Causes serious eye damage.
<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.

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

<b>Reproductive toxicity</b>	: Not classified.
<b>Specific target organ toxicity (single exposure)</b>	: Not classified.
<b>Specific target organ toxicity (repeated exposure)</b>	: May cause damage to organs through prolonged or repeated exposure if swallowed.
<b>Aspiration hazard</b>	: Not classified.

PRO-SET® M2046 Hardener	
Viscosity, kinematic (calculated value)	88.5 mm <sup>2</sup> /s @ 20 °C (68 °F)

<b>Symptoms/injuries after inhalation</b>	: May cause respiratory tract irritation.
<b>Symptoms/injuries after skin contact</b>	: Causes severe burns. Symptoms may include redness, pain, blisters. May cause an allergic skin reaction.
<b>Symptoms/injuries 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/injuries after ingestion</b>	: Harmful if swallowed. May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract. May cause stomach distress, nausea or vomiting.
<b>Other information</b>	: Likely routes of exposure: ingestion, inhalation, skin and eye.

### SECTION 12: Ecological information

<b>Toxicity</b>	
<b>Ecology - general</b>	: Toxic to aquatic life with long lasting effects.

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<b>Isophorone diamine (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)

### Persistence and degradability

<b>PRO-SET® M2046 Hardener</b>	
Persistence and degradability	Not established.

### Bioaccumulative potential

<b>PRO-SET® M2046 Hardener</b>	
Bioaccumulative potential	Not established.

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

<b>Isophorone diamine (2855-13-2)</b>	
Partition coefficient n-octanol/water	0.79 (at 23 °C)

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

### Mobility in soil

<b>PRO-SET® M2046 Hardener</b>	
Ecology - soil	No additional information available.

### Other adverse effects

**Effect on the global warming** : No known effects from this product.

Name	CAS#	Ecotoxicity Classification Information
Formaldehyde, polymer with benzenamine, hydrogenated	135108-88-2	Not classified
Cyclohexanamine, 4,4'-methylenebis-	1761-71-3	Acute Aquatic Cat. 2; Chronic Aquatic Cat. 2
Propylene glycol diamine, 2-amino-, diether with Propylene	9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 2
Isophorone diamine	2855-13-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
1H-Imidazole, 2-ethyl-4-methyl-	931-36-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
4-Methylimidazole	822-36-6	Not classified

**Other information** : Avoid release to the environment.

## 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. (Cycloaliphatic amine)  
Class (DOT/TDG) : 8  
Packing group (DOT/TDG) : III  
Marine pollutant : No

### Transport by sea

In accordance with IMDG

UN-No. (IMDG) : 2735  
Proper Shipping Name (IMDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (Cycloaliphatic amine)

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Class (IMDG)	: 8
Packing group (IMDG)	: III
EmS Number	: 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. (Cycloaliphatic amine)
Class (IATA)	: 8
Packing group (IATA)	: III
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.

#### Formaldehyde, polymer with benzenamine, hydrogenated (135108-88-2)

EPA TSCA Regulatory Flag	P - P - indicates a commenced PMN substance. XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e, Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).
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#### Propylene glycol diamine, 2-amino-, diether with Propylene (9046-10-0)

EPA TSCA Regulatory Flag	XU - XU - indicates a substance exempt from reporting under the Inventory Update Reporting Rule, i.e, Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(C)).
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#### Propylene oxide (75-56-9)

Listed on the United States SARA Section 302 Subject to reporting requirements of United States SARA Section 313	
CERCLA RQ	100 lb
SARA Section 302 Threshold Planning Quantity (TPQ)	10000 lb
SARA Section 313 - Emission Reporting	0.1 %

### International regulations

No additional information available

### US State regulations

California Proposition 65 - This product contains, or may contain, trace quantities of a substance(s) known to the state of California to cause cancer, developmental and/or reproductive harm

#### 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

#### Propylene oxide (75-56-9)

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	

#### Isophorone diamine (2855-13-2)

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

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### Propylene oxide (75-56-9)

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

### SECTION 16: Other information

**Date of issue** : 06/01/2015

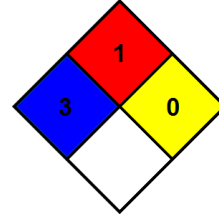
**Revision date** : 01/25/2019

**Other information** : None.

**NFPA health hazard** : 3

**NFPA fire hazard** : 1

**NFPA reactivity** : 0



HMIS III 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.*