

# SAFETY DATA SHEET

## 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:**..... PRO-SET® M2044 HARDENER  
**APPLICABLE PRODUCT CODES:** ..... M2044, M2044-1, M2044-2, M2044-4  
**CHEMICAL FAMILY:**..... Polyamine mixture.  
**INTENDED PRODUCT USES:**..... Curing agent for epoxy adhesive resins.  
**PRODUCT RESTRICTIONS:**..... None identified.  
**SDS VERSION:** ..... M2044-2016b

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

**EMERGENCY TELEPHONE NUMBERS (24 HRS):**  
Transportation  
CHEMTREC: ..... 800-424-9300 (U.S.)  
703-527-3887 (International)  
Non-transportation  
Poison Hotline: 800-222-1222

## 2. HAZARDS IDENTIFICATION

### Classification of Substance or Mixture

Acute toxicity – Oral, Category 4  
Skin corrosion/irritation, Category 1B  
Skin sensitizer, Category 1  
Eye damage/irritation, Category 1  
Germ cell mutagenicity, Category 2  
Specific target organ toxicity – repeated exposure, Category 2  
Acute aquatic toxicity, Category 3  
Chronic aquatic toxicity, Category 2

### Label Elements

#### Hazard Pictogram(s):



**Signal Word:**  
DANGER

#### **Hazard Statements:**

H302 Harmful if swallowed  
H314 Causes severe skin burns and eye damage  
H317 May cause an allergic skin reaction  
H341 Suspected of causing genetic defects  
H373 May cause damage to organs through prolonged or repeated exposure  
H411 Toxic to aquatic life with long lasting effects

#### **Precautionary Statements:**

##### Prevention

P201 Obtain special instruction before use  
P202 Do not handle until all safety precautions have been read and understood  
P260 Do not breathe dusts/fumes/gas/mists/vapors/spray  
P264 Wash hands thoroughly after handling  
P270 Do not eat, drink or smoke when using this product  
P272 Contaminated work clothing should not be allowed out of the workplace  
P273 Avoid release to the environment  
P280 Wear protective gloves/protective clothing/eye protection/face protection

##### Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.  
P303 + P361 + P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse or wash skin with soap and water (or shower).  
P304 + P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P308 + P313 IF exposed or concerned: Get medical advice/attention  
P310 Immediately call a POISON CENTER or doctor  
P333 + P313 If skin irritation or rash occurs: Get medical attention/advice  
P362 + P364 Take off contaminated clothing and wash it before reuse.  
P391 Collect spillage

# PRO-SET® M2044 HARDENER

## Storage

P405 Store locked up.

## Disposal

P501 Dispose of contents and container according to local, state, national and International regulations

## Other Hazards Not Resulting In Classification

None known.

### 3. COMPOSITION/INFORMATION ON HAZARDOUS INGREDIENTS

INGREDIENT NAME	CAS #	CONCENTRATION (%)
Polyoxypropylenediamine	9046-10-0	20-50
Isophoronediamine, reaction products with phenol and formaldehyde	25625-17-2	15-50
Isophoronediamine	2855-13-2	1-25
Triethylenetetramine	112-24-3	1-10
Hydroxybenzene	108-95-2	0.1-7

The exact chemical identity and/or exact percentage (concentration) of each ingredient may be held as a trade secret. Ingredient ranges provided may represent actual concentration ranges. Any ingredient not disclosed may have been determined not to pose a health or environmental hazard, or may only be present in concentrations that do not require disclosure. Refer to Section 15 for additional information regarding a WHMIS CBI claim.

### 4. FIRST AID MEASURES

**FIRST AID FOR EYES:**..... SYMPTOMS: Causes eye burns and eye damage. RESPONSE: Flush immediately with water for at least 15 minutes. Remove contact lenses if present and easy to do. Immediately call a POISON CONTROL CENTER or doctor.

**FIRST AID FOR SKIN:**..... SYMPTOMS: Causes skin burns, redness and irritation. May cause allergic skin reaction and sensitization. RESPONSE: Immediately wash skin with soap and water. Immediately call a POISON CONTROL CENTER or doctor. If exposed or concerned: Get medical attention or advice.

**FIRST AID FOR INHALATION:**..... SYMPTOMS: Can cause respiratory irritation, shortness of breath or cough. RESPONSE: Remove to fresh air if effects occur and keep comfortable for breathing. Immediately call a physician/doctor if symptoms develop and persist. If exposed or concerned: Get medical attention or advice.

**FIRST AID FOR INGESTION:**..... SYMPTOMS: May cause gastrointestinal irritation or ulceration. May cause burns of the mouth and throat. RESPONSE: Rinse mouth with water. DO NOT induce vomiting. If vomiting should occur, keep airway clear. Immediately call POISON CONTROL CENTER or doctor. If exposed or concerned: Get medical attention or advice.

### 5. FIRE FIGHTING MEASURES

**EXTINGUISHING MEDIA:**..... SUITABLE: Foam, carbon dioxide (CO<sub>2</sub>), dry chemical. NON-SUITABLE: Direct, high-pressure water stream.

**FIRE AND EXPLOSION HAZARDS:**..... During a fire, smoke may contain the original materials in addition to combustion products of varying composition which may be toxic and/or irritating. Combustion products may include, but are not limited to: oxides of nitrogen, carbon monoxide, carbon dioxide, volatile amines, ammonia, nitric acid, aldehydes, 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.

**SPECIAL FIRE FIGHTING PROCEDURES:**..... Use full-body protective gear and a self-contained breathing apparatus. Use of water may generate toxic aqueous solutions. Do not allow water run-off from fighting fire to enter drains or other water courses.

### 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS AND PROTECTIVE EQUIPMENT:**..... Keep unnecessary and unprotected personnel from entering area. Use appropriate safety and personal protective equipment as indicated in Section 8.

**MITIGATION AND CLEAN UP PROCEDURES:**..... Stop leak without additional risk. Isolate area. Dike and absorb with inert material (e.g., sand) and collect in a suitable, closed container. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Warm, soapy water may be used to clean residual.

**ENVIRONMENTAL PRECAUTIONS:**..... Prevent from entering into soil, ditches, sewers, waterways and groundwater. See Section 12 for environmental impact information.

### 7. HANDLING AND STORAGE

# PRO-SET® M2044 HARDENER

**STORAGE TEMPERATURE (min./max.):** ..... 40°F (4°C) / 90°F (32°C).

**STORAGE:** ..... Store in cool, dry place away from high temperatures and moisture. Keep container tightly closed. Store in a secure location with restricted access or store locked up.

**HANDLING PRECAUTIONS:** ..... Use only with adequate ventilation. Do not breathe vapors or mists from heated material. Avoid exposure to concentrated vapors. Avoid skin and eye contact. Wash thoroughly after handling. 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.

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

**EYE PROTECTION GUIDELINES:** ..... Chemical splash-proof goggles or face shield.

**SKIN PROTECTION GUIDELINES:** ..... Wear liquid-proof, chemical resistant gloves (nitrile-butyl rubber, neoprene, butyl rubber or natural rubber) and full body-covering clothing.

**RESPIRATORY/VENTILATION GUIDELINES:** ..... Use with adequate general ventilation and/or local ventilation to keep exposures below established limits. When ventilation cannot be made adequate enough to keep exposures below established limits, use a NIOSH approved respirator with an organic vapor cartridge, organic vapor cartridge + P100, or a multi-contaminant cartridge, depending on specific workplace conditions. Consult with your respirator and cartridge supplier to ensure proper selection of respirator and cartridge based on ingredients listed in Section 3 and specific workplace conditions. Use and select a respirator according the guidelines established in OSHA 1910.134 or other applicable respiratory protection standard.

**ADDITIONAL PROTECTIVE MEASURES:** ..... Use where there is immediate access to safety shower and emergency eye wash. Wash thoroughly after use. Contact lens should not be worn when working with this material. Generally speaking, working cleanly and following basic precautionary measures will greatly minimize the potential for harmful exposure to this product under normal use conditions.

**OCCUPATIONAL EXPOSURE LIMITS:** ..... Exposure limits may not be established for this product as a whole. For established exposure limits of specific ingredients in this product, or other available exposure limit information, refer to the table below.

Ingredient Name	CAS#	Exposure Limit Information
Polyoxypropylenediamine	9046-10-0	No data available
Isophoronediamine, reaction products with phenol and formaldehyde	25625-17-2	No data available (reference IPD)
Isophoronediamine	2855-13-2	No data available
Triethylenetetramine	112-24-3	AIHA WEEL: 1 ppm ; 6 mg/ m <sup>3</sup> ; Absorbed via skin
Hydroxybenzene	108-95-2	ACGIH TWA: 5 ppm; 19 mg/kg NIOSH REL: 5 ppm; 19 mg/kg OSHA PEL: 5 ppm; 19 mg/kg NIOSH CEILING: 15.6 ppm; 60 mg/kg

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**PHYSICAL FORM:** ..... Liquid.  
**COLOR:** ..... Amber.  
**ODOR:** ..... Ammonia-like  
**ODOR THRESHOLD:** ..... No data available  
**pH:** ..... No data. Estimated between 10-12.5 based on ingredient data.  
**MELTING POINT / FREEZING POINT** ..... No data.  
**BOILING POINT (760mm/Hg):** ..... > 400°F (204°C) estimated based on similar product.  
**FLASH POINT:** ..... Estimated > 200°F (93°C) estimated based similar product.  
**AUTO IGNITION TEMPERATURE** ..... No data.  
**LOWER EXPLOSIVE LIMIT (LEL)** ..... No data.  
**UPPER EXPLOSIVE LIMIT (UEL)** ..... No data.  
**VAPOR PRESSURE** ..... < 1 mmHg @ 20°C (estimated based on ingredient data).  
**SPECIFIC GRAVITY/DENSITY (water = 1)** ..... 0.97  
**BULK DENSITY** ..... 8.18 lbs./gal. (0.97kg/L)  
**VAPOR DENSITY (air = 1)** ..... No data.  
**EVAPORATION RATE (Butyl Acetate = 1)** ..... No data.  
**WATER SOLUBILITY (% BY WT.)** ..... No data.  
**PARTITION COEFFICIENT, n-OCTANOL/WATER (log Pow)** ..... No data.  
**KINEMATIC VISCOSITY:** ..... 72 mm<sup>2</sup>/s @ 20°C)  
**DECOMPOSITION TEMPERATURE:** ..... No data available.  
**% VOLATILE BY WEIGHT:** ..... 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.

Resin/Hardener	VOC Content	
	(g/L)	(lbs./gal)
XR29A / M2044	14.0	0.12
M1038 / M2044	3.45	0.03
M1018 / M2044	3.26	0.03
M1002 / M2044	7.11	0.06

**10. STABILITY AND REACTIVITY**

**STABILITY:**..... Product is stable at normal temperatures and pressures.

**REACTIVITY/HAZARDOUS REACTIONS:**..... Product will not react by itself. A mass of more than one pound of product plus an epoxy resin will cause irreversible polymerization with significant heat buildup and pressure.

**INCOMPATIBILITIES:**..... Avoid acids, oxidizing materials, halogenated organic compounds (e.g., methylene chloride). 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.

**CONDITIONS TO AVOID:**..... Avoid excessive heat.

**DECOMPOSITION PRODUCTS:**..... Very toxic fumes and gases when burned or otherwise heated to decomposition. Decomposition products may include, but not limited to: oxides of nitrogen, volatile amines, ammonia, nitric acid, aldehydes, nitrosamines.

**11. TOXICOLOGICAL INFORMATION**

Ingredient Name	CAS#	LD <sub>50</sub> Oral	LD <sub>50</sub> Dermal	LC <sub>50</sub> Inhalation
Polyoxypropylenediamine	9046-10-0	2855 mg/kg	2980 mg/kg	>0.74 mg/L 8h vapor
Isophoronediamine, reaction products with phenol and formaldehyde	25625-17-2	No data available (reference IPD)	No data available (reference IPD)	No data available (reference IPD)
Isophoronediamine	2855-13-2	1030 mg/kg	>2000 mg/kg	>5.01 mg/l dust/mist 4h
Triethylenetetramine	112-24-3	1716 mg/kg	1465 mg/kg	No data
Hydroxybenzene	108-95-2	317 mg/kg	630 mg/kg (solid)	900 mg/m <sup>3</sup> ; 8h (solid)

**ACUTE TOXICITY:**..... No specific toxicity data exists for this mixture. Classification is based on acute toxicity estimation methods using ingredient data.

Oral:..... Category 4. Harmful if swallowed.

Dermal:..... Not classified. Based on available data this product does not meet classification criteria. However, product contains materials that are readily absorbed through the skin. Absorption of phenolic solutions through the skin may be very rapid and can cause damage to the kidneys, liver, pancreas, spleen, and cause edema of the lungs.

Inhalation:..... Not classified. Based on available data this product does not meet classification criteria.

**SKIN CORROSION / IRRITATION:**..... Category 1B. Causes severe skin burns. Effects may be immediate. May cause persistent irritation or dermatitis.

**SERIOUS EYE DAMAGE / IRRITATION:**..... Category 1. Causes serious eye damage. May cause blurred vision. May cause corneal damage resulting in vision impairment or even blindness.

**RESPIRATORY SENSITIZATION:**..... Not classified. Based on available data this product does not meet classification criteria.

**SKIN SENSITIZATION:**..... Category 1. May cause allergic skin reaction.

**REPRODUCTIVE TOXICITY:**..... Not classified. Based on available data this product does not meet classification criteria.

**MUTAGENICITY:**..... Category 2. This product contains a substance (phenol, CAS# 108-95-2) that is suspected of causing genetic defects.

**CARCINOGENICITY:**..... Not classified. Based on available data this product does not meet classification criteria.

**SPECIFIC TARGET ORGAN TOXICITY (Single Exposure):**..... Not classified. Based on available data this product does not meet classification criteria.

**SPECIFIC TARGET ORGAN TOXICITY (Repeated Exposure):**..... STOT – Category 2. Product contains materials that are readily absorbed through the skin. Absorption of phenolic solutions through the skin may be very rapid and can cause damage to the kidneys, liver, pancreas, spleen, and cause edema of the lungs.

**ASPIRATION HAZARD:**..... Not classified. Based on available data this product does not meet classification criteria.

**OTHER HEALTH HAZARD INFORMATION:**..... This product is corrosive to skin and mucous membrane tissues. It is possible that excessive vapor inhalation may cause respiratory tract irritation.

**12. ECOLOGICAL INFORMATION**

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**ACUTE AQUATIC TOXICITY:**..... Aquatic Acute Category 3. Calculated Estimate. No specific test data available for the mixture. Toxic to aquatic life. Avoid release to the environment.

**CHRONIC AQUATIC TOXICITY:** ..... Aquatic Chronic Category 2. Calculated Estimate. No specific test data available for the mixture. Toxic to aquatic life with long lasting effects. Avoid release to the environment.

**PERSISTENCE AND BIODEGRADABILITY:** ..... No specific test data available for the mixture.

**MOBILITY IN SOIL:** ..... No specific test data available for the mixture.

**ADDITIONAL ECOTOXICITY INFORMATION:**..... In the liquid, uncured state, this product may be harmful to aquatic life with long lasting effects. Prevent release to the environment, sewers and natural waters.

Ingredient	CAS#	Ecotoxicity Classification Information
Polyoxypropylenediamine	9046-10-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 2
Isophoronediamine, reaction products with phenol and formaldehyde	25625-17-2	No data available (reference IPD)
Isophoronediamine	2855-13-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Triethylenetetramine	112-24-3	Aquatic Chronic Cat. 3
Hydroxybenzene	108-95-2	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 2

**13. DISPOSAL CONSIDERATIONS**

**WASTE DISPOSAL METHOD:**..... Evaluation of this product using RCRA criteria shows that it is not a hazardous waste, either by listing or characteristics, in its purchased form. It is the responsibility of the user to determine proper disposal methods.

Incinerate, recycle (fuel blending) or reclaim may be preferred methods when conducted in accordance with federal, state and local regulations.

**14. TRANSPORTATION INFORMATION**

**US DOT**

UN NUMBER: ..... UN 2735  
 SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.  
 TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine  
 HAZARD CLASS:..... Class 8  
 PACKING GROUP:..... PG III  
 MARINE POLLUTANT:..... No

**CANADA TDG**

UN NUMBER: ..... UN 2735  
 SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.  
 TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine  
 HAZARD CLASS:..... Class 8  
 PACKING GROUP:..... PG III  
 MARINE POLLUTANT:..... No

**IMDG**

UN NUMBER: ..... UN 2735  
 SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.  
 TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine  
 HAZARD CLASS:..... Class 8  
 PACKING GROUP:..... PG III  
 EmS Number: ..... F-A, S-B  
 MARINE POLLUTANT ..... Yes

**ICAO/IATA**

UN NUMBER: ..... UN 2735  
 SHIPPING NAME:..... Polyamines, liquid, corrosive, n.o.s.  
 TECHNICAL SHIPPING NAME:..... Polyoxypropylenediamine  
 HAZARD CLASS:..... Class 8  
 PACKING GROUP:..... PG III  
 MARINE POLLUTANT:..... Yes

**15. REGULATORY INFORMATION**

COUNTRY	INVENTORY LIST	STATUS
United States	TSCA	All ingredients are listed or otherwise compliant.
Europe	EINECS or ELINCS	All ingredients are listed or otherwise compliant.
Canada	CEPA (DSL/NDSL)	All ingredients are listed or otherwise compliant.
Australia	AICS	All ingredients are listed or otherwise compliant.
Japan	ENCS	All ingredients are listed or otherwise compliant.

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South Korea	KECI	All ingredients are listed or otherwise compliant.
China	IECSC	All ingredients are listed or otherwise compliant.
Philippines	PICCS	All ingredients are listed or otherwise compliant.

**US EPA TSCA Requirements:**..... No data available.

**Canada WHMIS Confidential Business Information (CBI):**..... The HMIRA number issued for this CBI claim is #10434. The date of filing is 2016-10-07.

**US EPA SARA TITLE III Reporting and Notification Requirements:**

Subject to Section 302 (TPQ)..... Phenol = 500/1000 (lbs.). TPQ = 500 lbs. if phenol is in powder form and has a particle size of less than 100 microns or is handled in solution or molten form, or meets the criteria for a NFPA reactivity rating of 2, 3, or 4.  
 Subject to Section 304 (RQ)..... Phenol RQ = 1000 lbs.  
 Subject to Section 311 or 312 ..... Immediate, Delayed.  
 Subject to Section 313 ..... This product contains hydroxybenzene (phenol) and is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

**US STATE REGULATORY INFORMATION:**

The following chemicals may be specifically regulated by individual states. For details on state regulatory requirements you should contact the appropriate state agency.

**COMPONENT NAME**

**/CAS NUMBER**

**CONCENTRATION**

**STATE CODE**

Hydroxybenzene  
108-95-2  
Propylene oxide  
75-56-9

< 0.0045%

PA, MA, NJ, IL, RI  
  
1CA

<sup>1</sup>: These substances are known to the state of California to cause cancer or reproductive harm, or both.

**16. OTHER INFORMATION**

**REASON FOR ISSUE:**..... Compliant to the requirements of the US OSHA 1910.1200 HazCom 2012 standard. Updates to Sections 3 and 15 to comply with Canada WHMIS 2015 requirements.

**PREPARED BY:**..... G. House

**APPROVED BY:**..... G. House

**TITLE:**..... Health, Safety & Environmental Manager

**APPROVAL DATE:**..... October 11, 2016

**SUPERSEDES DATE:**..... October 5, 2016

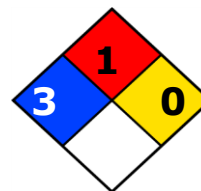
**SDS VERSION:**..... M2044-2016b

**OTHER HAZARD INFORMATION AND RATING SYSTEMS:**

**HMIS® RATING**

<b>HEALTH:</b>	<b>3</b>
<b>FLAMMABILITY:</b>	<b>1</b>
<b>PHYSICAL HAZARD:</b>	<b>0</b>
<b>PERSONAL PROTECTION:</b>	

**NFPA® 704 CODES**



*Approximate HMIS and NFPA Risk Ratings Legend:*  
 0 = Low or None; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe

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