PRO-SET® LAM-224 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: LAM-224 -2019a

SECTION 1: Identification

Identification

Product form : Mixtures

Product name : PRO-SET® LAM-224 Hardener

Product code : LAM-224, LAM-224-1, LAM-224-2, LAM-224-3, LAM-224-4, LAM-224-5

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 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 (Dermal)
Acute Tox. 4 (Inhalation)
Skin Corr. 1B
Eye Dam. 1
Skin Sens. 1
Repr. 2
Aquatic Acute 1
Aquatic Chronic 1

Label elements

Hazard pictograms (GHS) :

GHS05 GHS07 GHS08 GHS09

Signal word (GHS) :

Danger

Hazard statements (GHS) :

Harmful in contact with skin or if inhaled. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of damaging fertility or the unborn child. Very toxic to aquatic life. Very 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. 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 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 attention/advice. 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

Unknown acute toxicity

No additional information available

SECTION 3: Composition/information on ingredients

Substance

Not applicable

Mixtures

Name	Product identifier	HPR %
1-Piperazineethanamine	(CAS No) 140-31-8	10 - 30
1,3-Benzenedimethanamine	(CAS No) 1477-55-0	10 - 30
4-tert-Butylphenol	(CAS No) 98-54-4	10 - 30
Trimethylhexamethylenediamine	(CAS No) 25620-58-0	10 - 30
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	(CAS No) 57214-10-5	10 - 30
1,3-Propanediamine, N,N''-1,2-ethanediylbis-	(CAS No) 10563-26-5	5 - 10
Phenol, 4-nonyl-, branched	(CAS No) 84852-15-3	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..

SECTION 4: First aid measures

Description of first aid measures

First-aid measures after inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Immediately call a POISON CENTER or doctor/physician.

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 : Immediately call a POISON CENTER or doctor/physician. Rinse mouth. Do NOT induce vomiting.

Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : Harmful if inhaled. May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Harmful in contact with skin. Causes severe burns. Symptoms may include redness, pain, blisters. Repeated exposure to this material can result in absorption through skin causing significant health hazard. 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 : May be 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, cyanides, 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.

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).

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 : 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 : 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. 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 dry, cool, well-ventilated area. Protect from moisture. Storage temperature : 40°F (4°C) - 90°F (32°C).

SECTION 8: Exposure controls/personal protection

Control parameters

1-Piperazineethanamine (140-31-8)		
Not applicable		

1,3-Benzenedimethanamine (1477-55-0)		
ACGIH	ACGIH Ceiling (mg/m³)	0.1 mg/m³
NIOSH	NIOSH REL (ceiling) (mg/m³)	0.1 mg/m³

4-tert-Butylphenol (98-54-4)
Not applicable

Trimethylhexamethylenediamine (25620-58-0)
Not applicable

Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine) (57214-10-5)
Not applicable

1,3-Propanediamine, N,N''-1,2-ethanediylbis- (10563-26-5)
Not applicable

Phenol, 4-nonyl-, branched (84852-15-3)
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.

Eye protection : Wear approved eye protection (properly fitted dust- or splash-proof chemical safety goggles) and face protection (face shield).

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : In case of inadequate ventilation wear respiratory protection. 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 : Maintain levels below Community environmental protection thresholds.

Other information : 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

Physical state : Liquid

Appearance : No data available

Colour : Colourless

Odour : Ammonia

Odour threshold : No data available

pH : 11.4

Melting point : No data available

Freezing point : No data available

Boiling point : > 400 °F (204°C) estimated based on similar product.

Flash point : > 200 °F (93°C) estimated based similar product.

Relative evaporation rate (butylacetate=1) : No data available

Flammability (solid, gas) : Not flammable

Vapour pressure : < 1 mm Hg @ 20°C / 68°F (estimated based on ingredient data)

Relative vapour density at 20 °C : No data available

Relative density : 1

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 : 75 mm²/s @ 20°C / 68°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 : LAM-125 / LAM-224: 3.60 g/L (0.03 lbs/gal); LAM-135 / LAM-224: 1.66 g/L (0.01 (lbs/gal)

Bulk density : 8.34 lb/gal (1.00 kg/L)

SECTION 10: Stability and reactivity

Reactivity : No dangerous reaction known under conditions of normal use.

Chemical stability : Stable under normal storage conditions.

Possibility of hazardous reactions : 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.

Conditions to avoid : Heat. Incompatible materials.

Incompatible materials : Acids. Oxidizing materials. Halogenated compounds.

Hazardous decomposition products : May include, and are not limited to: oxides of carbon, nitrogen oxides, amines, ammonia, nitric acid, cyanides, aldehydes, nitrosamines, phenolics.

SECTION 11: Toxicological information

Information on toxicological effects

1-Piperazineethanamine (140-31-8)	
LD50 oral rat	2097 mg/kg
LD50 dermal rabbit	866 mg/kg

1,3-Benzenedimethanamine (1477-55-0)	
LD50 oral rat	980 mg/kg
LD50 dermal rabbit	2000 mg/kg
LC50 inhalation rat	1.34 mg/l/4h

4-tert-Butylphenol (98-54-4)	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rat	No data. Intraperitoneal – mouse – 78 mg/kg.
LC50 inhalation rat	5.6 mg/l Remarks: Nutritional and Metabolic: Weight loss or decreased weight gain

Trimethylhexamethylenediamine (25620-58-0)	
LD50 oral rat	910 mg/kg

1,3-Propanediamine, N,N''-1,2-ethanediylbis- (10563-26-5)	
LD50 oral rat	1200 mg/kg
LD50 dermal rabbit	190 - 210 mg/kg

Phenol, 4-nonyl-, branched (84852-15-3)	
LD50 oral rat	1412 mg/kg

Acute toxicity (oral) : Not classified.

Acute toxicity (dermal) : Dermal: Harmful in contact with skin.

Acute toxicity (inhalation) : Inhalation: Harmful if inhaled.

Skin corrosion/irritation : Causes severe skin burns

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitization : May cause an allergic skin reaction.

Germ cell mutagenicity : Not classified.

Carcinogenicity : Not classified.

Reproductive toxicity : Suspected of damaging fertility or the unborn child.

STOT-single exposure : Not classified.

STOT-repeated exposure : Not classified.

Aspiration hazard : Not classified.

PRO-SET® LAM-224 Hardener	
Viscosity, kinematic (calculated value) (20°C / 68°F)	75 mm²/s

Potential adverse human health effects and symptoms : Harmful in contact with skin. Harmful if inhaled.

Symptoms/injuries after inhalation : Harmful if inhaled. May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Harmful in contact with skin. Causes severe burns. Symptoms may include redness, pain, blisters. Repeated exposure to this material can result in absorption through skin causing significant health hazard. 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 : May be 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.

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

Toxicity

Ecology - general : Very toxic to aquatic life with long lasting effects.

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])

4-tert-Butylphenol (98-54-4)	
LC50 fish 1	4.71 - 5.62 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	3.9 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	6.9 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])
EC50 Daphnia 2	3.4 - 4.5 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])

Phenol, 4-nonyl-, branched (84852-15-3)	
LC50 fish 1	0.135 mg/l (Exposure time: 96 h - Species: Pimephales promelas [flow-through])
EC50 Daphnia 1	0.14 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	0.1351 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [flow-through])

Persistence and degradability

PRO-SET® LAM-224 Hardener	
Persistence and degradability	Not established.

Bioaccumulative potential

PRO-SET® LAM-224 Hardener	
Bioaccumulative potential	Not established.

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

4-tert-Butylphenol (98-54-4)	
BCF fish 1	34 - 240
Partition coefficient n-octanol/water	2.44

Trimethylhexamethylenediamine (25620-58-0)	
Partition coefficient n-octanol/water	0.77 (at 23 °C)

Phenol, 4-nonyl-, branched (84852-15-3)	
BCF fish 1	271

Mobility in soil

PRO-SET® LAM-224 Hardener	
Ecology - soil	No additional information available.

Other adverse effects

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

Ingredient	**CAS#**	**Ecotoxicity Classification Information**
1-Piperazineethanamine	140-31-8	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
1,3-Benzenedimethanamine	1477-55-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
4-tert-Butylphenol	98-54-4	Acute Aquatic Cat. 2; Chronic Aquatic Cat. 2
Trimethylhexamethylenediamine	25620-58-0	Acute Aquatic Cat. 3; Chronic Aquatic Cat. 3
Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)	57214-10-5	Acute Aquatic Cat. 1; Chronic Aquatic Cat. 1
1,3-Propanediamine, N,N''-1,2-ethanediylbis-	10563-26-5	Not classified
Phenol, 4-nonyl-, branched	84852-15-3	Acute Aquatic Cat. 1; Chronic Aquatic Cat. 1

Other information : Avoid release to the environment.

SECTION 13: Disposal considerations

Waste treatment methods

Product/Packaging disposal recommendations : Avoid release to the environment. 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 and TDG

UN-No.(DOT/TDG) : UN2735

Proper Shipping Name (DOT/TDG) : Polyamines, liquid, corrosive, n.o.s. (1,3-Benzenedimethanamine)

Class (DOT/TDG) : 8

Packing group (DOT/TDG) : II

Marine Pollutant : No

Transport by sea

In accordance with IMDG

UN-No. (IMDG) : 2735

Proper Shipping Name (IMDG) : POLYAMINES, LIQUID, CORROSIVE, N.O.S. (1,3-Benzenedimethanamine)

Class (IMDG) : 8

Packing group (IMDG) : II

EmS Number : F-A, S-B

Marine pollutant : Yes

Transport by sea

In accordance with IATA

UN-No. (IATA) : 2735

Proper Shipping Name (IATA) : Polyamines, liquid, corrosive, n.o.s. (1,3-Benzenedimethanamine)

Class (IATA) : 8

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.

Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine) **(57214-10-5)**	
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)).

Phenol, 4-nonyl-, branched (84852-15-3)	
Subject to reporting requirements of United States SARA Section 313	
EPA TSCA Regulatory Flag	SP - SP - indicates a substance that is identified in a proposed Significant New Uses Rule.
SARA Section 313 - Emission Reporting	1 %

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

1-Piperazineethanamine (140-31-8)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

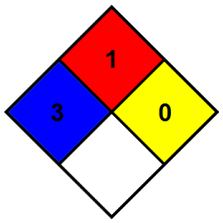
1,3-Benzenedimethanamine (1477-55-0)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Trimethylhexamethylenediamine (25620-58-0)
U.S. - New Jersey - Right to Know Hazardous Substance 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

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