

MATERIAL SAFETY DATA SHEET (R)
G.J. Chemical Co

Section I Identification

Distribution Source-----> G.J. Chemical Co., Inc.
Street Address-----> 40 Veronica Avenue, Somerset, NJ 08873
Telephone Number-----> 973-589-1450
Emergency Telephone Number> 1-800-424-9300 Chemtrec

Product Name & Number-----> Epoxy Hardner PACM
Product Number-----> 151205
Chemical Name or Synonyms--> 4,4'-Methylenebiscyclohexanamine
Cycloaliphatic Amine

Section II Ingredients

Ingredient	CAS No.	% by WT. Range	Exposure Limits
4-4'-Methylenebis cyclohexanamine	1761-71-3 EC-No.217-168-8	100%	N.E.

Key: (PEL) = Permissible Exposure Limit OSHA
(TLV) = Threshold Limit Value OSHA & ACGIH
(STEL) = Short Term Exposure Limit ACGIH
(WEEL) = USA. Workplace Environmental Exposure Levels
(TWA) = Time Weighted Average
CAS = Chemical Abstracts Registry Number
IDLH = Immediate Danger to Life and Health
N.E. =None Established

Section III Health Hazard Data

Colorless viscous liquid with ammonia-like odor.
EMERGENCY OVERVIEW:

DANGER!

- ~Corrosive, harmful if swallowed.
- ~Moderate respiratory irritant.
- ~Severe eye and skin irritant.
- ~May cause allergy by skin contact.
- ~Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- ~OSHA Hazards: Toxic by ingestion, Skin sensitizer, Corrosive

GHS Classification

- Acute toxicity, Oral (Category 4)
- Skin corrosion (Category 1B)
- Serious eye damage (Category 1)
- Skin sensitization (Category 1)
- Specific target organ toxicity - repeated exposure, Oral (Category 2)
- Acute aquatic toxicity (Category 2)
- Chronic aquatic toxicity (Category 2)

GHS Label elements, including precautionary statements



Pictogram

Signal word Danger

Hazard statement(s)

H302 Harmful if swallowed.

H314 Causes severe skin burns and eye damage.

H317 May cause an allergic skin reaction.

H373 May cause damage to organs through prolonged or repeated exposure if swallowed.

H411 Toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or doctor/ physician.

CERCLA RATINGS (SCALE 0-3):	Health=3	Fire=1	Reactivity=0	Persistence=0
NFPA RATINGS (SCALE 0-4):	Health=3	Fire=1	Reactivity=0	
HMIS RATINGS (SCALE 0-4):	Health=3	Fire=1	Reactivity=0	PPE=X

Exposure limits: See Section II

**Routes of Entry: Inhalation--> x Skin--> x Ingestion--> x
Eye-----> x**

Effects of overexposure:

Acute:

Eye> Corrosive with symptoms of burning, redness, pain, blurred vision, and edema.; Corrosive to the eyes may cause severe damage and blindness.

Skin> Corrosive with symptoms of burning, scarring, and reddening; May be harmful if absorbed through skin.

Inhalation> Severe irritation of the respiratory tract or acute nervous system depression characterized by headache, dizziness, staggering gait, confusion, unconsciousness or coma. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.

Ingestion> Toxic with severe irritation, nausea, vomiting, abdominal spasms, and restlessness. Corrosive and may cause severe and permanent damage to mouth, throat and stomach. Danger of perforation of the esophagus and stomach.

Chronic:

Eye> Repeated or prolonged exposure may result in conjunctivitis:

Skin> Repeated or prolonged exposure may result in chemical burns and permanent damage.

Inhalation> May cause ulcerative changes in the mouth and gastrointestinal disturbances. May sensitize the immune system. May cause lung damage.

Ingestion> Prolonged and repeated exposure may damage the liver and kidneys.

Medical Conditions Aggravated by Exposure> Skin contact may aggravate an existing dermatitis. Inhalation may aggravate asthma and other pulmonary diseases.

Section IV First Aid Measures

Emergency and First Aid Procedures:

Inhalation> Remove from exposure, restore breathing. If breathing is difficult, give oxygen. Keep warm and quiet. Get medical attention immediately.

Eyes (Splash)> Immediately flush eyes with water for 15 minutes. Remove contact lenses, if worn, after initial flushing. Hold eyelids open for complete irrigation. Take to a physician.

Skin (Splash)> Wash affected area with soap and water. Rinse with plenty of water for 15 minutes. Remove contaminated clothing. For chemical burns cover area with sterile, dry dressing bandage securely, but not too tight. Consult a physician if irritation persists.

Ingestion> Do not induce vomiting. Give one glass of water to drink if patient is conscious. Consult a physician or poison control center immediately, treat symptomatically.

Note to Physician: Lung damage may be evidenced by shortness of breath, especially on exertion, and may be accompanied by chronic cough. Skin sensitization may be evidenced by rashes, especially hives.

Section V Fire and Explosion Hazard Data

Flash Point: 318°F (159°C)

LEL %:N.D.

UEL %:N.D.

Auto-ignition Temp: N.D.

Extinguishing Media - Foam--> x CO2--> x Dry Chemical--> x

Water-fog--> x Other-->

Conditions of flammability: Not flammable or combustible.

Special Fire Fighting Procedures: Shut off source. Water fog may be used to cool closed containers to prevent pressure build up and possible auto-ignition or explosion when exposed to extreme heat. Wear self-contained breathing apparatus for confined spaces and where there is exposure to vapors. Use full fire-fighting protective clothing. Downwind personnel must be evacuated.

Unusual Fire and Explosion Hazards: Keep containers tightly closed.

Combustible liquid; isolate from all sources of ignition. During a fire potentially toxic/irritating fumes from combustion/decomposition products may be generated. Water-fog may cause frothing, which can be violent, if sprayed into containers of hot or burning liquid. Delayed lung damage can be experienced after exposure to combustion products, sometimes hours after the exposure.

Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, carbon oxides, nitrogen oxides and other unidentified organic

compounds evolve when this material undergoes combustion. May generate ammonia gas.

Section VI Accidental Release Measures

Protective Measures> Corrosive; Prevent contact with eyes and skin. Eliminate ignition sources in the vicinity of the spill or released vapor. Immediately evacuate all nonessential people. Verify that responders are properly trained and wearing appropriate respiratory equipment and fire resistant protective clothing during cleanup operations.

Spill Management> Use explosion proof equipment and equipment that can withstand the corrosive nature of this product. Shut off valves, contain spill, keep out of water sources and sewers, for smaller spills add non-flammable absorbent in spill area. For large spills use foam on spill to minimize vapors clean up by vacuuming then using non-flammable absorbent. Place all saturated absorbent, using non-sparking tools, in an approved container for disposal. Minimize breathing vapors and skin contact, ventilate confined areas, open all windows and doors, assure conformity with applicable government regulations.

Steps to be taken in case material is released or spilled> Extinguish all ignition sources. Shut off valves, contain spill, keep out of water sources and sewers, for small spills add non-flammable absorbent in spill area, for large spills impound and recover. Collect all saturated absorbent and place in an approved container for disposal.

Section VII Handling and Storage

Precautionary Measures> This material presents a corrosive hazard. Invisible vapor spreads easily and can be set on fire by many sources, such as pilot lights, welding equipment, and electrical motors and switches. Vapor is heavier than air and can travel considerable distance to a source of ignition and flash back. Avoid breathing vapors in top of shipping container. Use with adequate ventilation. Avoid contact with eyes, skin and clothing. Heating this product above 300°F in the presence of air may cause slow decomposition; above 500°F polymerization may occur.

General Handling Information> Avoid work practices that may release volatile components in the atmosphere. Avoid contaminating soil or releasing material into sewage and drainage systems. Use non-sparking tools to open or close containers.

Static Hazard> Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not be sufficient. For more information refer to OSHA Standard 29CFR 1910.106 “Flammable and Combustible Liquids” and National Fire Protection Association (NFPA 77) “Recommended Practice on Static Electricity”.

General Storage Information> Product may partially freeze with extended exposure to cold temperatures. If this occurs, product should be warmed to 100-140°F for one hour and stirred until clear. Do not store above 120°F. Store large quantities only in cool, dry areas in buildings designed to comply with OSHA 1910.106. Keep containers tight and upright to prevent leakage. Do not contact with oxidizing materials. Keep containers closed when not in use. Do not take internally. Store away from incompatible materials. Do not store in reactive metal containers. Keep from freezing.

Container Warnings> Containers should be Bonded and Grounded when pouring. Avoid free fall of liquid in excess of a few inches. Empty containers release residue and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, or expose such containers to heat, sparks, static electricity or other sources of ignition. Do not attempt to clean. "Empty" drums should be completely drained, properly bunged and promptly returned to a drum re-conditioner.

Section VIII Exposure Controls and Personal Protection

General Considerations> Consider the potential hazards of this material (Section 3), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended.

Engineering Controls> Provide general dilution or local exhaust ventilation in volume and pattern to keep concentrations within permitted exposure limits. All areas should be ventilated in accordance with OSHA Regulation 29 CFR Part 1910. Explosion proof motors should be used in mechanical ventilation.

Personal Protective Equipment:

Respiratory Protection> For known vapor concentrations use a NIOSH/MSHA air purifying respirator with full face-piece and organic vapor cartridge for exposures. For exposures of unknown vapor concentrations use positive pressure self contained breathing apparatus with full face-piece.

Protective Gloves> Nitrile rubber or Neoprene chemical resistant gloves.

Eye Protection> Use safety eyewear with splash-guards or face shield.

Other Protective Clothing or Equipment> Use chemical resistant apron or other impervious clothing. Remove and wash contaminated clothing before reuse. Shower and eyewash should be easily accessible to the work area.

Section IX Physical and Chemical Properties

Appearance -----> Colorless viscous liquid
Odor-----> Ammonia-like odor
Boiling Range (°C)-----> 320
Vapor Density-----> 7.24
Vapor Pressure-----> <0.1mmHg@20°C
Specific Gravity-----> 0.95@25°C
Solubility in water-----> Insoluble
pH-----> 12

Section X Stability and Reactivity Data

Stability: Unstable () Stable (X)

Conditions to avoid--> Heat, Sparks, Pilot Lights, Static Electricity, and Open Flame. Exposure to water vapor.

Incompatibility (Materials to Avoid)--> Acids, Acrylic Acid, Oxidizers, Aldehydes.

Hazardous decomposition products--> Fumes, Smoke, Carbon Monoxide, Carbon Dioxide, oxides of Nitrogen and Nitric Acid.

Hazardous Polymerization--> May occur () Will not occur (X)

Section XI Toxicity Data

The effects of overexposure shown in Section II are based on acute animal toxicity profiles. Typical values are:

Ingredient	Oral LD50(Rat)	Skin LD50(Rabbit)	Inhalation LC50
4,4'-Methylenebis cyclohexanamine	380mg/kg	2110mg/kg	N.D.

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC, NTP, OSHA or ACGIH.

Specific target organ toxicity - single exposure (Globally Harmonized System)
no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Section XII Ecological Information

Ecotoxicity:

Aquatic Toxicity: LC50 (96hr): 67.8mg/L; Golden Orfe
EC50 (48hr): 9.24mg/L; Daphnia magna
EC50 (72hr): 140-200mg/L; GreenAlgae

Toxicity to bacteria EC50 - Pseudomonas putida - 156 mg/l - 30 min

Elimination information: No data available.

Biodegradability: Aerobic Result: < 10 % - According to the results of tests of biodegradability this product is not readily biodegradable.

Section XIII Disposal Considerations

Waste Disposal Method> Hazard characteristic and regulatory waste stream classification can change with product use. Accordingly it is the responsibility of the user to determine the proper storage, transportation, treatment, and or disposal methodologies for spent materials and residues at time of disposition. Dispose in accordance with all applicable disposal regulations. Incinerate under controlled conditions in a permitted facility.

Section XIV Transport Information

DOT Shipping Name-----> Amines, solid, corrosive, n.o.s.
(4,4'-Methylenebiscyclohexanamine)
DOT ID Number-----> UN3259
DOT Hazard Classification-----> 8, (Corrosive Solid)
DOT Label Codes-----> 8 (Corrosive)
DOT Package Code-----> II
Emergency Response Guide--> 154

Section XV Regulatory Information

(RQ) Reportable Quantity-> None CERCLA

Sara 302 - No

Sara 313 - No

Sara Section 311 List Hazards:

- (a) Immediate Acute Health>>>>> Yes
- (b) Delayed Chronic Health>>>>> No
- (c) Fire>>>>> No (d) Reactive>>>>> No
- (e) Sudden Release of Pressure>>>>> No

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

4,4'-Methylenebis(cyclohexylamine) CAS-No.1761-71-3

New Jersey Right To Know Components

4,4'-Methylenebis(cyclohexylamine) CAS-No.1761-71-3

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

Section XVI Other Information

HMIS (Hazardous Materials Identification System)

Hazard Rating:

4-Extreme

3-High

2-Moderate

1-Slight

0-Insignificant

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/|\|\
Fire- / | \-**Reactivity**
/1 | 0\
<----|---->
|3 | X |
Toxicity- \ | /-**Personal**
 | | / **Protection**
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Acronyms:

ACGIH - American Conference of Governmental Industrial Hygienists
AIHA - American Industrial Hygiene Association
ANSI - American Nation Standards Institute
API - American Petroleum Institute
CERCLA - Comprehensive Emergency Response, Compensation, and Liability Act
DOT - U.S. Department of Transportation
EPA - U.S. Environmental Protection Agency
HMIS - Hazardous Materials Information System
IARC - International Agency For Research On Cancer
MSHA - Mine Safety and Health Administration
NFPA - National Fire Protection Association
NIOSH - National Institute of Occupational Safety and Health
NOIC - Notice of Intended Change (Proposed change to ACGIH TLV)
NTP - National Toxicology Program
OPA - Oil Pollution Act of 1990
OSHA - U.S. Occupational Safety & Health Administration
PEL - Permissible Exposure Limit (OSHA)
RCRA - Resource Conservation and Recovery Act
REL - Recommended Exposure Limit (NIOSH)
SARA - Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA - Self-Contained Breathing Apparatus
STEL - Short-Term Exposure Limit (generally 15 minutes)
TLV - Threshold Limit Value
TSCA - Toxic Substances Control Act
TWA - Time Weighted Average (8hr.)
WHMIS - Canadian Workplace Hazardous Materials Information System

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