



## Section 1. Product and Company Identification

**Product Name:** EPN-331 Part B  
**Supplier:** CSNRI | 621 Lockhaven Drive. Houston, TX 77073 | +1 281.590.8491  
**Emergency Phone Number:** 800.424.9300 (CHEMTREC)  
 +1 703.741.5970 (Outside the US)  
**Product Description:** Hardener solution for epoxy resin.  
**Product Use:** Intended to repair pipes.  
**Chemical Name or Synonym:** N/A

## Section 2. Hazards Identification

### Classification of the substance or mixture:

Skin corrosion/irritation – Category 1A  
 Sensitization/skin – Category 1A  
 Eye damage/eye irritation – Category 1  
 Acute toxicity/oral – Category 4  
 Acute toxicity / Inhalation– Category 4  
 STOT (RE) - Category 2  
 Hazardous to the Aquatic Environment – Long term (Chronic) Hazard – Category 3

### Label Elements:



### Hazard Statements:

H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H318 Causes serious eye damage.  
 H302 Harmful if swallowed.  
 H312 Harmful in contact with skin.  
 H373 May cause damage to organs through prolonged or repeated exposure.  
 H412 Harmful to aquatic life with long lasting effects.

### Signal Word: Danger

### Precautionary Statement:

P264 Wash thoroughly after handling.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.  
 P261 Avoid breathing dust/fume/gas/mist/vapors/spray.  
 P302+P352 IF ON SKIN: Wash with plenty water.  
 P333+P313 If skin irritation or rash occurs: Get medical advice  
 P301+P312 IF SWALLOWED: Call a Poison Center/doctor if you feel unwell.  
 P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing.  
 P312 Call a POISON CENTER if you feel unwell.



### Section 3. Composition/ Information on Ingredients

Chemical Name	CAS-No	Weight %
4,4'-methylenebis (cyclohexylamine)	1761-71-3	40 – 65
N-(2-aminoethyl) piperazine	140-31-8	4 – 10
[1,2-dibromo-2-chloro-3-[(2-methylpropan-2-yl) oxy] propyl] dimethyl phosphate	65997-17-3	10 – 30

### Section 4. First Aid Measures

#### **First Aid Measures for Accidental:**

**Eye Contact:** Immediate medical attention is required. Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes.

**Skin Contact:** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.

**Ingestion:** Do not induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician.

**Inhalation:** Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

**Most important symptoms/effects, acute and delayed:** Harmful if swallowed; can cause severe skin burns and eye damage; may cause an allergic skin reaction; prolonged or repeated oral exposure may damage organs.

**Indication of immediate medical attention and special treatment needed:** Treat symptomatically. Eye wash stations and emergency showers should be available.

### Section 5. Fire Fighting Measures

**Suitable Extinguishing Media:** Carbon dioxide, alcohol resistant foam, dry chemical, water fog; use water spray to cool fire exposed containers.

**Unsuitable Extinguishing Media:** No información available.

**Special Protective Equipment and Precautions for Fire-fighters:** Use protective firefighting clothing and positive pressure self-contained breathing apparatus to protect against potential harmful and/or irritating fumes. Do not use high pressure water jet as this may spread the area of the fire.

**Specific Hazards Arising from the Chemical (Under Fire Conditions):** Irritating or toxic substances may be emitted upon thermal decomposition including carbon monoxide, carbon dioxide, nitrogen oxides, ammonia.

### Section 6. Accidental Release Measures

**Personal Precautions, Protective Equipment and Emergency Procedures:** Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not walk through spilled material. Shut off all ignition sources. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8). Avoid breathing mist, vapors, spray. Avoid contact with skin, eyes and clothing.

**Environmental Precautions:** Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas.



**Methods and Materials for Containment and Cleaning Up:** Soak up with sand, earth, diatomaceous earth or other suitable inert absorbent material. Prevent from spreading or entering drains, ditches, waterways by using sand, earth or appropriate barriers. Dispose of in accordance with applicable local and federal environmental control regulations. Prevent from spreading or entering into drains, ditches, waterways by using sand, earth or appropriate barriers. Dispose of in accordance with applicable local and federal environmental control regulations.

## Section 7. Handling and Storage

**Precautions for Safe Handling:** Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Avoid breathing vapor or mist. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Do not reuse empty container.

**Conditions for safe storage including any incompatibilities:** Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10). Store in tightly closed containers to prevent moisture absorption and loss of volatiles. Store away from heat and open flame.

## Section 8. Exposure Controls / Personal Protection

### Control Parameters (Exposure Limits):

Component	Exposure Limits
4,4'-Methylenebis(cyclohexylamine)	5mg/m <sup>3</sup> (mists/vapors)
N-(2-aminoethyl)piperazine)	5mg/m <sup>3</sup>

**Appropriate Engineering Controls:** Ensure adequate ventilation through local exhaust.

### Personal Protective Equipment:

**Respiratory Protection:** In case of inadequate ventilation wear respiratory protection. Use respirators when exposure to vapors from heated material.

**Eye / Face Protection:** Safety glasses with side-shields. Risk of contact: Tightly fitting safety goggles.

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

**Additional protective measures:** Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## Section 9. Physical and Chemical Properties

<b>Physical State:</b>	Paste
<b>Colour:</b>	Yellow
<b>Odour:</b>	Amine like
<b>Melting Point/ Freezing Point:</b>	No data available



<b>Boiling point:</b>	No data available
<b>Flammability (solid, gas):</b>	No data available
<b>Lower and Upper Explosion limits/ Flammability Limits:</b>	No data available
<b>Flash Point:</b>	No data available
<b>Auto-ignition Temperature:</b>	No data available
<b>Decomposition Temperature:</b>	No data available
<b>pH:</b>	No data available
<b>Kinematic Viscosity:</b>	40,500 cP (Rheometer RheoStress RS150)
<b>Solubility:</b>	No data available
<b>Evaporation rate (ether=1):</b>	No data available
<b>Flammability Limits in Air:</b>	No data available
<b>Solubility in other solvents:</b>	No data available
<b>Partition coefficient (n-octanol/water):</b>	No data available
<b>Vapour Pressure:</b>	No data available
<b>Density and/or Relative Density:</b>	0.6334 at 75 °F
<b>Relative Vapour Density:</b>	No data available
<b>Particle Characteristics:</b>	No data available

#### Section 10. Stability and Reactivity

**Reactivity:** No dangerous reaction is known under normal use and storage conditions.

**Chemical Stability:** Stable under standard normal conditions.

**Possibility of Hazardous reactions:** Mixtures with strongly acidic or strongly alkaline materials may produce an exothermic reaction.

**Conditions to Avoid:** Avoid elevated temperatures and sources of ignition. Take precautionary measures against static discharges.

**Incompatible Materials / Chemicals:** Acids, strong oxidizing agents, isocyanates, acid chlorides, acid anhydrides, chloroformates. Reacts with epoxy resins. Do not mix with nitrites.

**Hazardous Decomposition Products:** Thermal decomposition products may include but are not limited to carbon monoxide, carbon dioxide, nitrogen oxides, ammonia.

#### Section 11. Toxicological Information

##### Information on toxicological effects:

**Routes of exposure:** Inhalation. Ingestion. Skin contact. Eye contact.

**Skin corrosion:** Corrosive (Rabbit / Draize test)

**Eye damage/irritation:** 10µL/24 (severe burns)

**Skin sensitization (guinea pig):** Sensitizer

##### Symptoms related to the physical, chemical and toxicological characteristics:

**Skin contact:** Corrosive; can cause chemical burns resulting in permanent damage; may cause skin sensitization or other allergic responses; repeated contact may cause dermatitis.

**Eye contact: Corrosive.** Vapors are irritating and may cause damage to the eyes; contact may cause severe burns and permanent eye damage including blindness.

**Ingestion:** Harmful if swallowed; may cause severe and permanent damage to mouth, throat and stomach; may lead to perforation of the intestine. Aspiration occurring while vomiting may cause lung damage.



**Inhalation:** May cause irritation of the respiratory tract. May cause nose, throat and/or lung irritation; there may be coughing, wheezing, difficulty in breathing, shortness of breath.

**Chronic Health Effects:** Skin sensitizer; once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels. After repeated high-dose oral exposure the substance causes effects to the liver.

**Mutagenicity:** No mutagenic effects reported.

**Sensitization:** May cause sensitization by skin contact.

**Carcinogenicity:** None ingredients classified as carcinogenic. No listed by OSHA, NTP, IARC

**Reproductive Toxicity:** No known significant effects or critical hazards under normal use. Suspected of damaging fertility or the unborn child if swallowed.

**Specific Target Organ Toxicity - single exposure (STOT-se):** Product not classified based on available data.

**Specific Target Organ Toxicity - repeated exposure (STOT-re):** May cause damage to the liver and skeletal muscles through prolonged or repeated oral exposure.

For 4,4'-Methylenebis(cyclohexylamine): NOAEL: (oral, rat): 15 mg/kg body weight per day.

**Over-exposure signs / symptoms:** Repeated or prolonged exposure may cause an allergic skin reaction; once sensitized, a severe allergic reaction may occur.

**Delayed and immediate effects and also chronic effects from short and long-term exposure:**

Short term exposure: No specific data.

Long term exposure: No specific data

#### Numerical measures of toxicity:

Product	Endpoint	Species	Results
4,4'-Methylenebis(cyclohexylamine)	LD50 Oral	Rat	400 – 500 mg/kg (ATE)
	LD50 Dermal	Rabbit	2,210 mg/kg
N-(2-aminoethyl) piperazine	LD50 Oral	Rat	2,140 mL/kg
	LD50 Dermal	Rabbit	866 mL/kg

#### Section 12. Ecological Information

**Ecotoxicity Effects:** Toxic to aquatic organisms with long lasting effects.

**Aquatic ecotoxicity:** Components of this product are hazardous to aquatic life.

#### Data for components:

Product	Endpoint	Species	Results
4,4'-Methylenebis(cyclohexylamine)	LC50	Golden orfe	85.5 mg/l (96 hrs)
	EC50	Daphnia magna	7.64 mg/l (48 hrs)
	EC50	Green algae	141.2 mg/l
N-(2-aminoethyl) piperazine	LC50	Pimephales promelas – fish	2190 mg/l (96 hrs)
	EC50	Daphnia magna	58 mg/l (48 hrs)
	EC50	Green algae – aquatic	>1000 mg/l (72 hrs)
	EC50	plants	511 mg/l (2hrs)
	PNEC	Micro-organism Aquatic organism	0.58 mg/l (intermittent release)

**Persistence and degradability:** Ingredients are not readily biodegradable.



**Bioaccumulative potential:** Low bioaccumulation potential

**Mobility in soil:** No information available.

**Results of PBT and vPvB Assessment:** Product not classified as Persistent, Bioaccumulative and Toxic. Product not classified as very Persistent or very Bioaccumulative.

**Other adverse effects:** No other adverse effects are identified.

**Additional information:** No information available.

### Section 13. Disposal Considerations

**Waste treatment methods:** Do not dump to ground, sewers or watercourses. Dispose of at a licensed waste disposal facility utilizing methods that are in compliance with all applicable federal, state and local laws regulations. Waste characterization and compliance with applicable laws are the responsibility solely of the waste generator.

**Uncleaned packaging:** Empty containers should be taken to an approved waste handling site for recycling or disposal.

### Section 14. Transport Information

#### **DOT:**

UN-Number: UN2735

Proper Shipping Name: Amines, liquid, corrosive, n.o.s (4,4'-methylenebis (cyclohexylamine))

Hazard Class: 8

Packing Group: II

ERG: No 153

#### **IMDG:**

UN-Number: UN2735

Proper Shipping Name: Amines, liquid, corrosive, n.o.s (4,4'-methylenebis (cyclohexylamine))

Hazard Class: 8

Packing Group: II

EmS No: F-A, S-B

#### **IATA:**

UN-Number: UN2735

Proper Shipping Name: Amines, liquid, corrosive, n.o.s (4,4'-methylenebis (cyclohexylamine))

Hazard Class: 8

Packing Group: II

### Section 15. Regulatory Information

**Safety, health and environmental regulations/legislation specific for the substance or mixture:**

**SARA Title III Section 311/312 (40CFR370):** Acute health hazard, chronic health hazard

**SARA Title III Section 313 (40CFR372):** No reportable components

**CERCLA Status (40CFR302):** No reportable components

**(Release of a hazardous substance into the environment in an amount that equals or exceeds its reportable quantity (RQ) requires notification to the National Response Center at 800-424-8802.)**

**RCRA Status (40CFR261):** Not listed





**OSHA/NTP/IARC Carcinogen Status:** Not listed

**TSCA Inventory Status:** Ingredients reported/included

**Canadian DSL Status:** Ingredients reported/included

**Chemicals Known to the State of California to Cause Cancer or Reproductive Toxicity:** None known to be in the product at levels requiring a warning.

**REACH Annex XIV (SVHC):** No listed components

**REACH Annex XVII (Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles):** No listed components

**REACH Status (EC 1907/2006):** The ingredients of this mixture have been registered, pre-registered or is otherwise exempted from registration under the Registration, Evaluation and Authorization of Chemical Substances.

#### Section 16. Chemical safety assessment: Not available Other Information

##### Key Legend Information:

N/A – Not Applicable

ND – Not Determined

OSHA – Occupational Safety and Health Administration

NIOSH – National Institute for Occupational Safety and Health

ACGIH – American Conference of Governmental Industrial Hygienists

DOT – Department of Transportation

IATA – International Air Transport Association

IMDG – International Maritime Dangerous Goods

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