1. PRODUCT AND COMPANY IDENTIFICATION

Product Description: Epoxy Hardener (3:1)

SAP ID(s): 6708; 6709; 181313

Material Code: Modified Polyamine

Chemical Family: Epoxy Resin Curing Agent

Intended Use:

Manufacturer/Supplier:
Reichhold, Inc.
Corporate Headquarters
P.O. Box 13582
Research Triangle Park, NC 27709
USA
Tel +1-919-990-7500
Fax +1-919-767-8602

2. HAZARDS IDENTIFICATION

**Primary Routes of Entry**
Skin contact, Ingestion, Inhalation, Eye contact, Skin absorption.

**Acute Effects**

**Eyes:** Corrosive to the eyes and may cause severe damage including blindness.

**Skin:** Corrosive. Causes burns. Severe skin irritation. May cause sensitization by skin contact. Can be absorbed through skin.

**Inhalation:** Harmful if inhaled and may cause delayed lung injury. Severe respiratory irritant. May cause allergic respiratory reaction.

**Ingestion:** Moderately toxic. May be harmful if swallowed. Aspiration into lungs may cause chemical pneumonia and lung damage. Ingestion causes burns of the upper digestive and respiratory tracts. Ingestion is not an anticipated route of exposure for this material in industrial use.

**Chronic Effects:** May cause sensitization by inhalation. This material does not contain 0.1% or more of any chemical listed by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), or regulated by the Occupational Safety and Health Administration (OSHA) as a carcinogen. Exposure to organic solvents during pregnancy may cause an increased risk of birth defects.

**Target Organ(s):** Lungs, Eyes, Skin.

**HMIS:**
Health: 3*
Flammability: 1
Reactivity: 1

**Emergency Telephone** (Chemtrec) 1-800-424-9300

**Email:** ProdSafe@reichhold.com

**Appearance:** Straw Colored

**Physical State:** Liquid

**Odor:** Amine
3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>Weight %</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poly(oxypropylene)diamine</td>
<td>9046-10-0</td>
<td>45.5 - 47.5</td>
<td>Hazardous</td>
</tr>
<tr>
<td>4-Nonyl phenol, branched</td>
<td>84852-15-3</td>
<td>33 - 35</td>
<td>Hazardous</td>
</tr>
<tr>
<td>Phenol, 4,4&quot;-(1-methylethylidene)bis-, polymer with (chloromethyl)oxirane</td>
<td>68391-18-4</td>
<td>11.5 - 13.5</td>
<td>Hazardous</td>
</tr>
<tr>
<td>1-Piperazineethanamine</td>
<td>140-31-8</td>
<td>6 - 8</td>
<td>Hazardous</td>
</tr>
</tbody>
</table>

4. FIRST AID MEASURES

Skin Contact: Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing before re-use. Get medical attention if irritation develops or persists.

Eye Contact: Move individual away from exposure. Immediately flush eyes with large quantities of clean water for at least 15 minutes. Get immediate medical attention.

Inhalation: Remove victim to fresh air. Keep warm and quiet. If not breathing, give artificial respiration. If breathing is difficult, give oxygen by trained personnel. GET IMMEDIATE MEDICAL ATTENTION.

Ingestion: Do not induce vomiting without medical advice. CORROSIVE. ASPIRATION HAZARD. Never give anything by mouth to an unconscious person. GET IMMEDIATE MEDICAL ATTENTION.

5. FIRE-FIGHTING MEASURES

Flammability: No data available

Suitable Extinguishing Media: Carbon dioxide (CO2), Foam, Dry chemical, Water spray, Do not use a solid water stream as it may scatter and spread fire.

Hazardous Combustion Products: Carbon dioxide (CO2), Carbon monoxide, Nitrogen oxides (NOx), Ammonia.

Fire/Explosion Hazard: Closed containers may rupture when exposed to extreme heat.

Protective Equipment and Precautions for Firefighters: Wear self-contained breathing apparatus (SCBA) and full fire-fighting protective clothing. Thoroughly decontaminate all protective equipment after use. Evacuate all persons from the fire area to a safe location. Move non-burning material, as feasible, to a safe location as soon as possible. Fire fighters should be protected from potential explosion hazard while extinguishing the blaze. Use water spray to cool fire-exposed containers.

NFPA Rating: Health 3 Flammability 1 Instability 0

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Use personal protective equipment. Ensure adequate ventilation. Keep people away from and upwind of spill/leak.

Environmental Precautions: Prevent further leakage or spillage if safe to do so. Prevent product from entering drains. Do not flush into surface water or sanitary sewer system.

Methods for Containment: Prevent spilled material from 1) contaminating soil, 2) entering sanitary sewers, storm sewers, and drainage systems, and 3) entering bodies of water or ditches that lead to waterways. Prevent spreading over a wide area (e.g. by containment or oil barriers).

Methods for Clean-up: Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
7. HANDLING AND STORAGE

Handling:
Avoid breathing vapors or mists. Avoid contact with skin, eyes and clothing. Remove and wash contaminated clothing before re-use. Wash hands before breaks and immediately after handling the product. Ensure adequate ventilation.

Storage:
Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits
Contains no substances with occupational exposure limit values

Engineering Controls:
Ensure adequate ventilation, especially in confined areas. Local ventilation may be required during certain operations.

Personal Protective Equipment

Eye/face Protection:
Wear safety glasses with side shields and a faceshield or goggles and a faceshield. Ensure that eyewash stations and safety showers are close to the workstation location.

Skin Protection:
Gloves made of butyl rubber. Chemical resistant apron. Boots.

Respiratory Protection:
In case of inadequate ventilation wear respiratory protection.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:
Straw Colored

Odor:
Amine

Odor Threshold:
Not available

Physical State:
Liquid

pH:
Not applicable

Flash Point:
> 93°C / > 200°F

Flash Point Method:
Seta closed cup

Autoignition Temperature:
Not available

Boiling Point/Range:
> 200°C / < 392°F

Freezing point:
Not available

Flammability Limits in Air

Lower:
Not available

Upper:
Not available

Specific Gravity:
0.964 - 0.988 @ 25°C

Solubility:
Insoluble

Evaporation Rate:
Not available

Vapor Pressure:
Not available

Vapor Density:
> 1 (Air = 1)

Percent volatile:
Not applicable

VOC Content:
Not available

Viscosity:
200 - 400 cps @ 25°C

10. STABILITY AND REACTIVITY

Chemical Stability:
Stable under normal conditions.

Conditions to Avoid:
Keep away from open flames, hot surfaces and sources of ignition. Contamination by those materials referred to under Incompatible materials. Temperatures above 300°C.

Incompatible Materials:

Hazardous Decomposition Products:
Hazardous Polymerization: Hazardous polymerisation does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Poly(oxypropylene)diamine
- LD50 Oral: 2855 mg/kg - rat
- LD50 Dermal: 2980 mg/kg - rabbit

4-Nonyl phenol, branched
- LD50 Oral: 1300 mg/kg - rat

1-Piperazineethanamine
- LD50 Oral: 2140 mg/kg - rat
- LD50 Dermal: 894 mg/kg - rabbit

Irritation and corrosion
Corrosive to eyes. Corrosive to skin.

Sensitization:
May cause sensitization by inhalation and skin contact.

Chronic Toxicity

Target Organ(s):
Lungs, Eyes, Skin.

12. ECOLOGICAL INFORMATION

Marine Pollutant: NONYL PHENOL.

Ecotoxicity
Ecotoxicity effects: Harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

Bioaccumulation: No information available.

Poly(oxypropylene)diamine
- Freshwater Fish LC50 (96h) > 220 - < 460 mg/l (golden orfe)

1-Piperazineethanamine 556 Epoxy Hardener (2:1)
- Toxicity to Aquatic Invertebrates EC50 (48h) 32 - 58 mg/l (daphnia magna)

13. DISPOSAL CONSIDERATIONS


Contaminated Packaging: Empty containers should be taken for local recycling, recovery or waste disposal.

US EPA Waste Number: Not applicable.

14. TRANSPORT INFORMATION

DOT
- UN-No: UN2735
- Proper Shipping Name: POLYAMINE, LIQUID, CORROSIVE, N.O.S.
- Technical Name: NONYL PHENOL
- POLYOXYALKYLENE AMINES
14. TRANSPORT INFORMATION

| Hazard Class   | 8          |
| Packing Group  | III        |
| Marine Pollutan: | NONYL PHENOL |
| NAERG:         | 153        |

**TDG**

- **UN-No:** UN2735
- **Proper Shipping Name:** POLYAMINES, LIQUID, CORROSIVE, N.O.S.
- **Technical Name:** NONYL PHENOL
- **Hazard Class:** CLASS 8
- **Packing Group:** PG III
- **Packing Instructions:** 818, 820
- **NAERG:** 153

**IATA**

- **UN-No:** UN2735
- **Proper Shipping Name:** POLYAMINES, LIQUID, CORROSIVE, N.O.S.
- **Technical Name:** NONYL PHENOL
- **Hazard Class:** 8
- **Packing Group:** III
- **Packing Instructions:** 818, 820
- **NAERG:** 153

**IMDG/IMO**

- **UN-No:** UN2735
- **Proper Shipping Name:** POLYAMINE, LIQUID, CORROSIVE, N.O.S.
- **Technical Name:** NONYL PHENOL
- **Hazard Class:** CLASS 8
- **Packing Group:** PG III
- **EmS No.:** F-A, S-B
- **NAERG:** 153

15. REGULATORY INFORMATION

**International Inventories**

- **TSCA Inventory Status:** All components of this material are listed on the US Toxic Substances Control Act (TSCA) inventory.
- **Canadian Inventory Status:** All components of this material are listed on the Canadian Domestic Substances List (DSL).
- **Australian Inventory Status:** This product contains only chemicals which are currently listed on the Australian Inventory of Chemical Substances.
- **Korean Inventory Status:** This product contains only chemicals which are currently listed on the Korean Chemical Substances List.
- **Philippine Inventory:** This product contains one or more chemicals currently not on the Philippine Inventory of Chemicals and Chemical Substances.
- **Japan ENCS:** This product contains only chemicals that are currently listed on the Japanese Inventory of Existing and New Chemical Substances.
- **Chinese IECS:** This product contains only chemicals that are currently listed on the Chinese Inventory of Existing Chemical Substances.
New Zealand Inventory: This product contains only chemicals which are currently listed on the New Zealand Inventory of Chemicals.

U.S. Federal Regulations
SARA 313
Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazardous Categorization

<table>
<thead>
<tr>
<th>Acute Health Hazard</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic Health Hazard</td>
<td>Yes</td>
</tr>
<tr>
<td>Fire Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Sudden Release of Pressure Hazard</td>
<td>No</td>
</tr>
<tr>
<td>Reactive Hazard</td>
<td>No</td>
</tr>
</tbody>
</table>

TSCA 12(b) - Export Notification:
This material does not contain any components that are subject to the US Toxic Substances Control Act (TSCA) Section 12(b) Export Notification requirements.

Clean Air Act, Section 112 Hazardous Air Pollutants (HAPs) (see 40 CFR 61)
This product does not contain any HAPs.

CERCLA
This product does not contain components that have been assigned reportable quantities.

State Regulations
California Proposition 65
This product does not contain any Proposition 65 chemicals.

Canada
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR.

WHMIS Hazard Class

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No</th>
<th>WHMIS Ingredient Disclosure List</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-Piperazineethanamine</td>
<td>140-31-8</td>
<td>1%</td>
</tr>
</tbody>
</table>

16. OTHER INFORMATION

Prepared By: Reichhold Product Regulatory Department
Revision Date: 22 Aug 2009
Revision Number: 1
Revision Summary: None
Former date: 6 September 2002
This information is provided in good faith and is correct to the best of Reichhold’s knowledge as of the date hereof and is designed to assist our customers; however, Reichhold makes no representation as to its completeness or accuracy. Our products are intended for sale to industrial and commercial customers. We require customers to inspect and test our products before use and to satisfy themselves as to suitability for their specific applications. Any use which Reichhold customers or third parties make of this information, or any reliance on, or decisions made based upon it, are the responsibility of such customer or third party. Reichhold disclaims responsibility for damages, or liability, of any kind resulting from the use of this information. THERE ARE NO WARRANTIES OR REPRESENTATIONS, EXPRESS OR IMPLIED, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THIS INFORMATION OR TO THE PRODUCT IT DESCRIBES. IN NO EVENT SHALL REICHHOLD BE LIABLE FOR SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES.

End of MSDS