Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Super Sap® CLR Fast Hardener

Product Use Description: Modified polyamine for curing epoxy resins

Company: Entropy Research Labs
18525 S Main St
Gardena, CA 90248

Contact numbers / Emergency: Los Angeles: (310) 882-2120
24/7 Emergency Hotline: (760) 476-3962
Global Response Access Code: 333178

2. COMPOSITION/ INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>CAS Number</th>
<th>Components</th>
<th>WT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Description – The exact chemical identity of this component is trade secret. This component is composed of Polyamine polymer solutions, Isophoronediamine, 1,3- Benzenedimethanamine (MXDA), Benzyldimethylamine, and proprietary polyamine components.</td>
<td></td>
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<tr>
<td>CAS Number – N/A</td>
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</tbody>
</table>

Chemical Family: Amine

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

3. HAZARDS IDENTIFICATION

Emergency Overview: Harmful if swallowed. Corrosive. Causes severe irritation if inhaled, severe skin irritation, severe eye irritation, and may cause skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction.

Xi, N Irritant, toxic to aquatic environment

R 36/38 Irritating to eyes and skin.
R 43 May cause sensitization by skin contact.
R51/53 Toxic to aquatic organism. May cause long term adverse effects in the aquatic environment.

4. FIRST AID MEASURES

Symptoms and effects: Irritation of the skin and eyes.

First Aid - Inhalation: Remove to fresh air.
First Aid - Skin: For skin contact, under a safety shower, immediately remove contaminated clothing and shoes. Wash affected areas thoroughly with large amounts of water, and soap if available, for at least 15 minutes. Seek immediate medical attention. Discard or decontaminate clothing before re-use and destroy contaminated shoes.
First Aid - Eye: For eye contact, immediately flush eyes for at least 15 minutes with running water. Hold eyelids apart to ensure rinsing of the entire eye surface and lids with water. If physician is not available, flush for an additional 15 minutes. Seek immediate medical attention.
First Aid - Ingestion: If swallowed, immediately give at least 3-4 glasses of water, but do not induce vomiting. If vomiting occurs, give fluids again. Do not give anything by mouth to an unconscious or convulsing person. Seek immediate medical attention.

Overexposure Effects: Causes severe irritation if inhaled, severe skin irritation, severe eye irritation, and may cause skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction.

Advice to Physicians: If skin sensitisation has developed and a causal relationship has been confirmed, further exposure should not be allowed.

5. FIRE FIGHTING MEASURES

Super Sap CLR Fast Hardener
MSDS Number: MSDS_12_CLF01_v1_US   Version No.: 01   Revision date: 01-June-2011   Print date: 01-June-2011
6. ACCIDENTAL RELEASE MEASURES
Personal precautions: Avoid all personal contact with skin, eyes and clothing.
Environmental precautions: Prevent contamination of soil and water. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth or other appropriate barriers. If material enters drains it should be pumped out into a open vessel. Emergency services may need to be called to assist in this operation.
Clean-up methods - small spillage: Absorb or contain liquid with sand, earth or other absorbent spill control material. Shovel material to labelled sealable container for safe disposal. Do not use sawdust, wood chips or other cellulosic materials to absorb the spill, as the possibility for spontaneous combustion exists. Wash spill residue with warm, soapy water if necessary.
Large spillage: Transfer to a labelled container for product recovery or safe disposal. Otherwise treat as for small spillage.

7. HANDLING AND STORAGE
Signal Word: Danger!
Precautions: Causes severe irritation if inhaled, severe skin irritation, severe eye irritation, and may cause skin and eye burns. Can cause allergic respiratory reaction and allergic skin reaction. Do not breath vapor mist. Do not get in eyes, on skin, or on clothing. Keep clothing.
Handling: Avoid contact with skin, eyes and clothing.
Storage: Keep container tightly closed and dry to prevent moisture absorption and contamination.
Storage temperatures: Ambient.

8. EXPOSURE CONTROLS/ PERSONAL PROTECTION
Occupational exposure standards: None established.
Respiratory protection: Not normally required. In a confined space wear half mask respirator with organic vapour cartridge and build-in particular filter NPF 20 (gas only). If product is applied by spraying wear self contained breathing apparatus.
Skin protection: Wear impervious nitride rubber gloves or butyl rubber gloves, gauntlet type.
Eye protection: Monogoggles.
Body protection: Standard issue work clothes, safety boots.

9. PHYSICAL AND CHEMICAL PROPERTIES
Physical state: Liquid
Color: Amber
Odor: Amine
Density: \(0.97 \sim 1.2 \text{ g/cm}^3\) at \(20 ^\circ C \text{ (68} ^\circ F\)
Vapor Pressure: \(0.1 \text{ Pa at } 20 ^\circ C \text{ (68} ^\circ F\)
Boiling Point: \(> 200 ^\circ C \text{ (>392} ^\circ F)\)
Decomposition Temperature: \(> 200 ^\circ C \text{ (>392} ^\circ F)\)
Evaporation Rate: <1 (Butyl Acetate = 1)
Flash point: >100 \(^\circ C \text{ (212} ^\circ F)\)
Solubility in water: Miscible @ \(20 ^\circ C \text{ (68} ^\circ F\)

10. STABILITY/REACTIVITY
Stability: Stable under normal use conditions. Reacts with strong oxidizing agents, bases, and acids. Polymerizes exothermically with amines, mercaptans and Lewis acids at ambient temperature and above. Polymerizes in contact with bases ( eg caustic soda), ammonia, primary and secondary amines, alcohols and acids.
Conditions to avoid: Caustic soda can induce a vaporous polymerisation at temperatures over 150 \(^\circ C\).
Materials to avoid: Strong oxidizing agents, bases, and acids. Caustic soda.
Hazardous decomposition products: Carbon monoxide, carbon dioxide, aldehydes, nitrogen oxides.

11. TOXICOLOGICAL INFORMATION
Eye irritation: Severe irritant.
Skin irritation: Severe irritant.
Respiratory irritation: Severe irritant.
Sensitization: Causes allergic skin and respiratory sensitivity in some people.

Component Toxicological Information: p-tert Butyl Phenol can cause skin depigmentation (vitiligo) and systematic damage to liver and thyroid.

12. ECOLOGICAL INFORMATION

Mobility: No data available
Persistence/degradability: No data available
Bioaccumulation: No data available
Acute toxicity - fish: No data available

13. DISPOSAL CONSIDERATIONS

Precautions: See section 8. Refer to section 7 before handling the product or containers.
Waste disposal: Recover or recycle product and container, if possible. Otherwise incineration or dispose to licensed contractor in accordance with federal, state and local regulations.
Product disposal: Drain container thoroughly. Rinse three times with suitable solvent. Treat rinses as for product disposal. After draining, vent in a safe place away from sparks.
Local legislation: Control of Pollution Act 1974.
                           Control of Pollution (Special waste) Regulations 1980.
                           Environmental Protection Act 1990.

14. TRANSPORT INFORMATION

DOT
49CFR172.101-102 CLASSIFICATION
In 5 L containers or smaller = Consumer Commodity ORM-D
If packed in more than 5 L =
Proper Shipping Name: Polyamines, liquid, corrosive, n.o.s.
Technical Shipping Name (m-Xylenediamine, Isophoronediamine)
Hazard Class: 8
ID Number: UN2735
Packing Group: PG III

IATA
Proper Shipping Name: Polyamines, liquid, corrosive, n.o.s.
Technical Shipping Name (m-Xylenediamine, Isophoronediamine)
Hazard Class: 8
ID Number: UN2735
Packing Group: PG III

IMDG
Proper Shipping Name: Polyamines, liquid, corrosive, n.o.s.
Technical Shipping Name (m-Xylenediamine, Isophoronediamine)
Hazard Class: 8
ID Number: UN2735
Packing Group: PG III

TDG
Proper Shipping Name: Polyamines, liquid, corrosive, n.o.s.
Technical Shipping Name (m-Xylenediamine, Isophoronediamine)
Hazard Class: 8
ID Number: UN2735
Packing Group: PG III

15. REGULATORY INFORMATION

US Federal Regulations:
OSHA: This material safety data sheet (MSDS) has been prepared in compliance with the federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.

SARA Title III: Section 304 – CERCLA: Not Listed

SARA Title III: Section 313 Toxic Chemical List (TCL): This product does not contain any chemicals for routine annual toxic chemical release reporting under Section 313 (40 CFR 372). This information must be included in all MSDS’s that are copied and distributed for this material.

TSCA Section 8(b) – Inventory Status: Chemical components listed on TSCA Inventory.

TSCA Section 12(b) – Export Notification: This product contains chemical(s) which is (are) regulated by TSCA 12(b) Regulation and it is required that proper export notification shall be sent to EPA prior to shipping out of the United States of America.

CAS Number: 84852-15-3
Chemical Name: 4-Nonylphenol, branched

International Regulations:
Canadian Inventory Status: The product contains components included on the Domestic Substances List (DSL) and the Non-Domestic Substances List (NDSL)

State Regulations:
New Jersey Right-to-Know: The following is required composition information:

CAS Number 25154-52-3
Chemical Name: Nonylphenol

CAS Number 1477-55-0
Chemical Name: 1,3-Benzenedimethanamine

CAS Number: 98-54-4
Chemical Name: Phenol, 4-(1,1-dimethylethyl)-

Pennsylvania Right-to-Know: The following is required composition information:

CAS Number 25154-52-3
Chemical Name: Nonylphenol

CAS Number 1477-55-0
Chemical Name: 1,3-Benzenedimethanamine

CAS Number: 98-54-4
Chemical Name: Phenol, 4-(1,1-dimethylethyl)-

16. OTHER INFORMATION

Uses:
- Compositions for the building and civil engineering industries e.g. flooring compounds, primers, adhesives, mortars, joints and grouts
- Offshore & Marine applications

SDS distribution:
This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

USER’S RESPONSIBILITY / DISCLAIMER OF LIABILITY: This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as a guarantee of any specific property of the product.

As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

This bulletin cannot cover all possible situations that the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. It is your responsibility to develop appropriate work practice guidelines and employee instructional programs for your operation.
Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name: Super Sap® CLR Epoxy
Product Use Description: Modified Liquid Epoxy Resin
Company: Entropy Resins Inc
18525 S Main St
Gardena, CA 90248

Contact numbers / Emergency:
Los Angeles (310) 882-2582
24/7 Emergency Hotline: (760) 476-3962
Global Response Access Code: 333178

2. COMPOSITION/ INFORMATION ON INGREDIENTS

Description – The exact chemical identity of this component is trade secret. This component is composed of Epoxidized Pine Oils, Bisphenol A/F type epoxy resin, Benzyl Alcohol, and proprietary reactive epoxy diluents.

CAS Number – N/A
Chemical Family: Epoxy Resin

Amounts specified are typical and do not represent a specification. Remaining components are proprietary, non-hazardous, and/or present at amounts below reportable limits.

3. HAZARDS IDENTIFICATION

HMIS Hazard Rating:
Health - 2  Flammability - 1  Physical Hazards - 0

Emergency Overview: May cause allergic skin reaction in susceptible individuals. May cause skin and eye irritation.

4. FIRST AID MEASURES

Symptoms and effects: Irritation of the skin and eyes.
First Aid - Inhalation: No specific measures
First Aid - Skin: Do not delay. Remove contaminated clothing. Wash skin with water using soap if available.
If persistent irritation occurs, obtain medical attention.
First Aid - Eye: Do not delay. Flush eye with water. If persistent irritation occurs, obtain medical attention immediately.
First Aid - Ingestion: Do not induce vomiting. In the unlikely event of ingestion, obtain medical attention immediately.
Advice to Physicians: If skin sensitisation has developed and a causal relationship has been confirmed, further exposure should not be allowed.

5. FIRE FIGHTING MEASURES

Special hazards: Not classified as flammable, but will burn. Carbon monoxide may be involved incomplete combustion occurs.
Extinquishing media- small fires: Dry chemical powder, carbon dioxide foam, water spray or fog, sand or earth.
Large fires: Foam, water spray or fog.
Unsuitable extinguishing media: Water in a jet.
Protective equipment: Full protective clothing and self contained breathing apparatus.
Other information: Keep adjacent containers cool by spraying with water.

6. ACCIDENTAL RELEASE MEASURES

Super Sap CLR Epoxy Resin
MSDS Number: MSDS_11_CLR03_v1_US  Version No.: 01  Revision date: 01-May-2011  Print date: 01-May-2011
Personal precautions: Avoid contact with skin, eyes and clothing
Personal protection: Wear protective clothing specified for normal operations (see section 8).
Environmental precautions: Prevent contamination of soil and water. Prevent from spreading or entering into drains, ditches or rivers by using sand, earth or other appropriate barriers. If materials enter drains it should be pumped out into an open vessel. Emergency services may need to be called to assist in this operation.

Clean-up methods- small spillage: Absorb or contain liquid with sand, earth or spill control material. Shovel material to labelled sealable container for safe disposal.
Large spillage: Transfer to a labelled container for product recovery or safe disposal. Otherwise treat as for small spillage.
Waste Disposal: At this time, this material or its containers would not be considered hazardous wastes as defined under the federal RCRA regulations (40 CFR 261) if discarded. Care should be taken to ensure that the material or its containers are disposed of in an approved facility in accordance with current federal, state, and local regulations.

For further information, contact your state or local waste agency or the U.S. Environmental Protection Agency’s RCRA hot line (1-800-424-9346 or 202-382-3000).

7. HANDLING AND STORAGE
Handling: Avoid contact with skin, eyes and clothing
Storage: Keep container tightly closed and dry. Palletised loads should be stacked to a maximum of 4 high.
Storage temperatures: Ambient.

8. EXPOSURE CONTROLS/ personal protection
Occupational exposure standards: None established.
Respiratory protection: Not normally required. In a confined space wear half mask respirator with organic vapour cartridge and build-in particular filter NPF 20 (gas only). If product is applied by spraying wear self contained breathing apparatus.
Hand protection: Nitride rubber gloves or butyl rubber gloves, gauntlet type.
Eye protection: Monogoggles.
Body protection: Standard issue work clothes, safety boots.

9. PHYSICAL AND CHEMICAL PROPERTIES
Physical state: Liquid
Colour: Clear / Pale yellow
Odour: Slight
Density: 1100 - 1200 kg/m³ @ 25 °C (typical)
Dynamic viscosity: 8.0-13.0 Pa.s @ 25 °C
Flash point: Over 200 °C
Solubility in water: Negligible
N-octanol/water partition coefficient Data not available

10. STABILITY/REACTIVITY
Stability: Stable under normal use conditions. Reacts with strong oxidising agents. Polymerises exothermically with amines, mercaptens and Lewis acids at ambient temperature and above. Polymerises in contact with bases (eg caustic soda), ammonia, primary and secondary amines, alcohol’s and acids.
Conditions to avoid: Caustic soda can induce a vaporous polymerisation at temperatures over 150 °C.
Materials to avoid: Strong oxidising agents. Caustic soda.
Hazardous decomposition products: Hazardous decomposition products are not expected to form during normal storage.

11. TOXICOLOGICAL INFORMATION
Acute toxicity
Acute toxicity - oral: LD50 > 10000 mg/kg (rat)

Eye irritation: Irritant.
Skin irritation: Irritant.
Respiratory irritation: Not irritating.
Skin sensitisation: Skin sensitizer.
Carcinogenicity: A recent review of the available data by the International Agency for Research on Cancer (IARC), has concluded that DGEBPA is not classified as a carcinogen.
Mutagenicity: DGEBPA in animal mutagenicity studies were negative. In vitro mutagenicity tests were negative in some cases and positive in others.

12. ECOLOGICAL INFORMATION

Prevent entry into sewers and natural waters. May cause localized fish kill.

Movement and Partitioning: Bioconcentration potential is moderate (BCF between 100 and 3000 or Log Kow between 3 and 5).

Degradation and Transformation: Theoretical oxygen demand is calculated to be 2.35 p/p. 20-day biochemical oxygen demand is <2.5%.

Ecotoxicology: Material is moderately toxic to aquatic organisms on an acute basis. LC50/EC50 between 1 and 10 mg/L in most sensitive species.

13. DISPOSAL CONSIDERATIONS

Precautions: See section 8. Refer to section 7 before handling the product or containers.
Waste disposal: Recover or recycle if possible. Otherwise incineration or dispose to licensed contractor.
Product disposal: Drain container thoroughly. Rinse three times with suitable solvent. Treat rinses as for product disposal. After Draining, vent in a safe place away from sparks and re. Send to drum recovered or metal reclaimed.

14. TRANSPORT INFORMATION

D.O.T. SHIPPING NAME: Not regulated by DOT.
TECHNICAL SHIPPING NAME: Not applicable.
D.O.T. HAZARD CLASS: Not applicable.
U.N./N.A. NUMBER: Not applicable.
PACKING GROUP: Not applicable.

15. REGULATORY INFORMATION

OSHA STATUS: Slight irritant; possible sensitizer.
TSCA STATUS: All components are listed on TSCA inventory or otherwise comply with TSCA requirements.
SARA TITLE III: None (deminimus).
SARA HAZARD CLASSIFICATION: This material has been categorized as having the following hazard(s) as defined by SARA title III regulations (40 CFR 370): acute, chronic.

16. OTHER INFORMATION

Uses and restrictions: - Compositions for the building and civil engineering industries e.g. flooring compounds, primers, adhesives, mortars, joints and grouts - Offshore & Marine applications
This document contains important information to ensure the safe storage, handling and use of this product. The information in this document should be brought to the attention of the person in your organisation responsible for advising on safety matters.

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As the conditions or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this product. Information contained herein is believed to be true and accurate but all statements or suggestions made without warranty, expressed or implied, regarding accuracy of the information, the hazards connected with the use of the material or the results to be obtained from the use thereof. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

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