

PRODUCT NAME(S): MF-A Series Epoxy Resin (Part A)

SECTION 1 – IDENTIFICATION

Manufacturer's Info:
Rhino Linings Corporation
9747 Businesspark Avenue
San Diego, CA, 92131

Product name: MF-A Series Epoxy Resin (Part A)
Chemical Name: Mixture
Chemical Family: Epoxy Resin

Information phone: (858) 450 0441
Emergency contact: CHEMTREC (800) 424 9300

SECTION 2 – HAZARD(S) IDENTIFICATION

OSHA Hazard Communication Standard:

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

GHS-Label Elements: **Signal Word:**
DANGER

Pictogram(s):



GHS 08



GHS 07



GHS 09

Classification of the substance or mixture:

| Hazard Class | Category | Hazard Statement Codes | Hazard Statements |
|---|----------|------------------------|---|
| Skin corrosion / Irritation | 2 | H315 | Causes skin irritation |
| Serious eye damage / Eye irritation | 2A | H319 | Causes serious eye irritation |
| Skin Sensitization | 1B | H317 | May cause an allergic skin reaction |
| Germ cell mutagenicity | 2 | H341 | Suspected of causing genetic defects |
| Reproductive Toxicity | 2 | H361 | Suspected of damaging fertility or the unborn child |
| Specific target organ toxicity, single exposure | 3 | H335 H336 | May cause respiratory irritation May cause drowsiness or dizziness |
| Specific target organ toxicity, repeated exposure | 1 | H373 | Causes damage to central nervous system, respiratory system, kidney, liver, blood and skin through prolonged or repeated exposure |
| Aquatic Hazard, Acute | 2 | H401 | Toxic to aquatic life |
| Aquatic Hazard, Long term | 2 | H411 | Toxic to aquatic life with long lasting effects |

Precautionary Statements:

| | | |
|--------------------|--|---|
| Prevention: | P201 P202 P280 P260 P270 P264 P272 P271 P273 | Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/ protective clothing / eye protection/ face protection. Do not breathe mist/ vapors/ spray. Do not eat, drink or smoke when using this product. Wash exposed area with plenty of water and soap thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Use only outdoors or in a well-ventilated area. Avoid release to the environment. |
| Response: | P302 + P352 P333 + P313 P362 P305 + P351 + P338 P337 + P313 P304 + P340 + P312 P308 + P313 P391 | IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. IF exposed or concerned: Get medical advice/attention. Collect spillage. |
| Storage: | P403 + P233 P405 | Store in a well-ventilated place. Keep container tightly closed. Store locked up. |
| Disposal: | P501 | Dispose of contents/container to hazardous or special waste collection point in accordance with local/regional/national/international regulations. |

Hazards not otherwise classified: No specific dangers known.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

| Components | CAS # | EC # | Concentration, % |
|---|--------------|--------------|------------------|
| Diglycidyl Ether of Bisphenol A Homopolymer (DGEBA) | 25085-99-8 | 607-537-5 | 45 – 100 |
| Confidential Component 1 | Trade Secret | Trade Secret | 15 - 45 |
| Nonylphenol | 84852-15-3 | 284-325-5 | 1 – 5 |
| Distillates (Petroleum), Hydrotreated Light | 64742-47-8 | 265-149-8 | 0.1 – 1 |
| Xylene | 1330-20-7 | 215-535-7 | 0.03 – 0.3 |

SECTION 4 – FIRST-AID MEASURES**Description of First Aid measures:**

- Inhalation:** Remove the exposed person to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.
If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
If unconscious, place in recovery position and maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed.
- Skin:** Wash material off of the skin with plenty of soap and water for at least 15 minutes. Remove contaminated clothing and shoes immediately and wash them before reuse. For severe exposures, immediately get under safety shower and begin rinsing. For molten product, immediately immerse affected area in cool water or flush with large amounts of cool water, and get medical attention. If irritation develops and persists, consult a physician or dermatologist.
- Eye:** Rinse cautiously with water for several minutes, especially under the eyelids. Remove contact lenses, if present and easy to do. Continue rinsing for at least 15 minutes. Do not rub eyes in order to prevent cornea injury. If eye irritation develops and persists, consult a physician or ophthalmologist.
- Ingestion:** Remove the exposed person to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any. If conscious, rinse mouth thoroughly with water and then give 60 to 240 mL (2 to 8 oz) of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs.
If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms/effects, acute and delayed: See Section 11 for more details.**General advice for First Aid responders:** Show this SDS to physician.**Note to physician:** Specific antidotes or neutralizers do not exist. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Recommended medical monitoring for at least 48 hours.

Eyes: Stain for evidence of corneal injury. If cornea is burned, instill antibiotic/steroid preparation as needed.

Skin: This product contains component that is a skin sensitizer. Treat symptomatically as for contact dermatitis or thermal burn.

Ingestion: Inducing vomiting can be contraindicated because of the irritating nature of the chemical.

SECTION 5 – FIRE-FIGHTING MEASURES**Suitable extinguishing media:** Water fog or fine spray, alcohol-resistant foam, dry chemical or carbon dioxide fire extinguishers.**Unsuitable extinguishing media:** Direct water stream may cause frothing, splattering of burning material, violent steam generation or eruption and spreading of fire.**Specific hazards arising from the chemical:** Material may be ignited only if preheated to high temperatures (such in fire conditions). Fire in vicinity poses risk of pressure build-up and rupture. Containers at risk from fire should be cooled with water and, if possible, removed from the danger area. Hazardous Combustion products: carbon and nitrogen oxides, amines, phenol, hydrogen cyanide, formaldehyde, lower molecular weight organic molecules. Dense smoke is emitted when burned without sufficient oxygen.**Special Protective Equipment and Precautions for fire-fighters:** Wear NIOSH or OSHA approved self-contained breathing apparatus in positive pressure mode with full face piece and full protective gear. Isolate the scene by removing all persons from the incident area. Fight fire from protected location or safe distance. Consider the use of unmanned hose holders or monitor nozzles. Immediately withdraw all personnel from the area in case of rising sound from venting safety device or discoloration of the container. No action should be taken involving any personal risk or without suitable training.

Contain fire water run-off if possible. Fire water run-off, if not contained, may cause environmental damage. Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Keep unnecessary and unprotected personnel from entering. Ensure adequate ventilation/exhaust extraction. Avoid breathing vapors or mist during clean up. Use protective equipment as described in Section 8. Do not touch or walk through spilled material, spilled material may cause a slipping hazard.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. Inform the relevant authorities if the product has caused environmental pollution. Water polluting material. May be harmful to the environment if released in large quantities. See Section 12 for more details.

Methods and materials for containment and cleaning up: Remove mechanically; cover the remainder with non-combustible absorbent material (e.g. sand, earth, vermiculite or diatomaceous earth). Following absorption, transfer into properly labeled chemical waste containers. If necessary, repeat application of absorbent material until all liquid has been removed from the surface. Remove residual with warm, soapy water or non-flammable, safe solvent. Solvents are not recommended for clean-up unless the recommended exposure guidelines and safe handling practices for the specific solvent are followed. Consult appropriate solvent Safety Data Sheet for handling information and exposure guidelines. Scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Wait at least 15 minutes after first application. Cover the area again with absorbent material and shovel this into chemical waste container. Remove waste container and keep in a well ventilated area. After 72 hours, seal the container, and properly dispose of the waste material and any contaminated equipment (i.e., broom or brush) in accordance with existing federal, state and local regulations.

For major spills: Stop leak if without risk. Move containers from spill area. Remove ignition sources. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or contain and collect with an absorbent material as described in the previous paragraph.

For minor spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly with soap and water to remove residual contamination. Never return spills to original containers for re-use.

Residues from spill cleanup may continue to be regulated under provisions of RCRA and require storage and disposal as hazardous waste. For major spills, see Section 1 for the Emergency contact; for further disposal measures, see Section 13.

SECTION 7 – HANDLING AND STORAGE

Precautions for safe handling: Protect chemical from atmospheric moisture. Avoid prolonged exposure to heat and air. Keep away from sources of ignition. Avoid use of electric band heaters. Failures of electric band heaters have been reported to cause drums of liquid epoxy resin to explode and catch fire. Application of a direct flame to a container of liquid epoxy resin can also cause explosion and/or fire. Do not reseal if contamination is suspected.

Use adequate ventilation to keep airborne levels below the exposure limits. Do not inhale vapors and mists. Wear respiratory protection if material is heated, mixed, sprayed or used in a confined space. Avoid contact with skin and eyes. Wear appropriate eye and skin protection. Wash hands thoroughly after handling. Hands and/or face should be washed before eating, drinking and smoking and at the end of the shift. Remove contaminated clothing and protective equipment before entering eating areas. Persons with a history of skin sensitization problems should not be employed in any process in which this product is used.

Conditions for safe storage, including any incompatibilities: Store in original or approved alternative container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Protect it against physical damage and moisture. Normal temperature and pressures do not affect the material. Keep liquid away from heat, sparks and flame. Do not cut, drill, grind, weld or perform similar operations on or near containers. Use appropriate containment to avoid environmental contamination.

Requirements to be met by storerooms and receptacles: No special requirements.

Storage stability: Stable under normal conditions.

Storage temperature: 60 - 105°F (16 - 40°C)

Employee education and training in the safe use and handling of this product are required under the OSHA Hazard Communication Standard 29 CFR 1910.1200. Employees and consumers should be warned of health risks associated with product use.

See Section 8 for additional information on hygiene measures.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters/Occupational exposure limit values: Not available for mixture. Results for components are listed in Section 15.

Appropriate engineering controls: Good local and general ventilation should be sufficient to control worker exposure to airborne contaminants below recommended exposure limits. Local exhaust may be required in some areas.

Personal protective equipment:

Eye/face protection:

When directly handling liquid product, eye protection is required. Examples of eye protection include safety glasses and goggles or full face shield when there is a greater risk of splash. Contact lenses should not be worn when working with chemicals.

Skin/body protection:

Avoid contact with skin. Impervious gloves (nitrile butyl rubber, neoprene or PVC) should be worn always when working with this product. Body should be covered with appropriate clothing (apron, arm covers or full body suit) depending on the task being performed and the risks involved. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH. Wash contaminated clothing before reuse. Store work clothing separately. Appropriate footwear should be also selected based on the task being performed and the risks involved. Items which cannot be decontaminated, such as shoes, belts and watchbands, should be removed and disposed of properly.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits. When ventilation is inadequate, use either an atmosphere supplying respirator or NIOSH or OSHA approved air-purifying respirator for organic vapors. Respirator must be properly fitted and its selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Clean water should always be readily available for emergency skin and eye washing. Emergency eyewash fountains and safety shower are recommended in close proximity as a matter of good work practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

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| Appearance: | Viscous Liquid |
| Odor: | Mild |
| Odor threshold: | Not available |
| pH: | Not available |
| Melting point/ freezing point: | Not available |
| Initial boiling point and boiling range: | >250°C (482°F) |
| Flash point: | >93.4°C (200°F) |
| Evaporation rate: | Negligible |
| Flammability (solid, gas): | Not applicable. |
| Upper/ lower flammability or explosive limits: | Upper explosion limit: Not available / Lower explosion limit: Not available Product does not present an explosion hazard. |
| Vapor pressure: | Negligible |
| Vapor density: | Not available |
| Relative density: | 1.10-1.20 g/cm ³ @ 20°C (68°F) |
| Solubility (water): | Not available |
| Partition coefficient n-octanol/water: | Not available |
| Auto-ignition temperature: | Product is not self-igniting |
| Decomposition temperature: | Not available |
| Viscosity: | 8,000-13,000 mPa.s at 25°C (77°F) |

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: Hazardous Polymerization will not occur by itself. Reaction of more than one pound (0.5 kg) of product with an aliphatic amine will cause irreversible polymerization with considerable heat build-up.

Chemical stability: Stable under recommended storage conditions.

Conditions to avoid: Avoid short term exposures to temperatures above 300°C. Avoid prolonged exposure to temperatures above 250°C. Potentially violent decomposition can occur above 350°C. Generation of gas during decomposition can cause pressure in closed systems. Pressure build-up can be rapid.

Incompatible materials: Strong oxidizing agents. Water, alcohols, amines, bases, acids.

Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon and nitrogen oxides, amines, phenol, hydrogen cyanide, formaldehyde, lower molecular weight organic molecules.

SECTION 11 – TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Inhalation, Skin and Eye Contact, Ingestion.

Symptoms of exposure:

Acute toxicity:

Oral: May be harmful if swallowed. Adverse symptoms may include abdominal pain, nausea, and diarrhea.

Dermal: May be harmful in contact with skin. Adverse symptoms may include irritation and redness.

Inhalation: Inhalation is unlikely due to the low vapor pressure. However, if handled at elevated temperatures, it may give off-gas, vapor or mist that is very irritating to the respiratory system. Adverse symptoms may include nausea, headache, difficulties with breathing.

Skin corrosion / irritation:

Irritating to skin. Skin contact may result in dermatitis, either irritative or allergic.

Serious eye damage / eye irritation:

May cause serious eye irritation. Adverse symptoms may include tearing, redness and swelling.

Specific target organ toxicity, single exposure:

Product contains components that may cause respiratory irritation and drowsiness or dizziness after single exposure.

Aspiration hazard: Not an aspiration hazard.

Chronic toxicity:
Respiratory and Skin Sensitizer:

This product contains components that are reported to be a skin sensitizer.

- Diglycidyl Ether of Bisphenol A Homopolymer, CAS #: 25085-99-8
- Confidential Component 1, CAS #: Trade Secret

Germ cell mutagenicity:

This product contains component that is suspected of causing genetic defects:

- Confidential Component 1, CAS #: Trade Secret

Carcinogenicity:

This product does not contain component(s) known or reported to be carcinogenic by IARC, NTP, EPA, OSHA, ACGIH.

Reproductive toxicity:

This product contains component that is suspected reproductive toxicant:

- Nonylphenol, CAS #: 84852-15-3

Specific target organ toxicity, repeated exposure:

Central nervous system, respiratory system, kidney, liver, blood, skin.

Medical conditions aggravated by overexposure:

Central nervous system, respiratory system, kidney, liver, blood, skin disorders, if product is handled without adequate protection.

Toxicity test results: Not available for mixture. Results for components:

| Components | Test Results |
|--|---|
| Diglycidyl Ether of Bisphenol A Homopolymer, CAS #: 25085-99-8 | <p>Acute Toxicity Oral LD50 (Rat): >15,000 mg/kg; Very low toxicity if swallowed. Harmful effects not anticipated from swallowing small amounts. Dermal LD50 (Rabbit): 23,000 mg/kg. Prolonged skin contact is unlikely to result in absorption of harmful amounts. Inhalation LC50 (Rat): At room temperature, exposure to vapor is minimal due to low volatility. Vapor from heated material, mist or aerosols may cause respiratory irritation. Skin corrosion/irritation (Rabbit): Prolonged and repeated contact may cause skin irritation with local redness. Serious eye damage/eye irritation (Rabbit): May cause eye irritation. Corneal injury is unlikely. STOT, SE: Evaluation of available data suggests that this material is not an STOT-SE toxicant. Aspiration Hazard: Based on physical properties, not likely to be an aspiration hazard.</p> <p>Chronic Toxicity Sensitization, skin: For similar material(s): Has caused allergic skin reactions in humans. Has demonstrated the potential for contact allergy in mice. For respiratory sensitization: No relevant data found. Germ cell mutagenicity: In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative. Carcinogenicity: Many studies have been conducted to assess the potential carcinogenicity of DGEBA. The most recent review of the available data by the IARC has concluded that DGEBA is not classified as a carcinogen. Although some weak evidence of carcinogenicity has been reported in animals, when all of the data are considered, the weight of evidence does not show that DGEBA is carcinogenic. Reproductive toxicity: Not observed. Resins based on the DGEBA did not cause birth defects or other adverse effects on the fetus when pregnant rabbits were exposed by skin contact or by ingestion. STOT, RE: Except for skin sensitization, repeated exposures to low molecular weight epoxy resins of this type are not anticipated to cause any significant adverse effects.</p> |
| Confidential Component 1, CAS #: Trade Secret | <p>Acute Toxicity Oral LD50 (Rat): ~10,000 mg/kg Dermal LD50 (Rabbit): 2,000-5,000 mg/kg Inhalation LC50 (Rat): No data available Skin corrosion/irritation (Rabbit), 4hrs exposure/72hrs observation: irritating (OECD Test Guideline 405) Serious eye damage/eye irritation (Rabbit): severe eye irritation (OECD Test Guideline 405) STOT, SE: Respiratory tract irritation, Category 3 hazard</p> <p>Chronic Toxicity Sensitization: Skin sensitizer. Germ cell mutagenicity: In vivo tests showed mutagenic effects (mammalian animal; germ) (OECD 488 Transgenic Rodent Somatic and Germ Cell Mutation Assay) Carcinogenicity: Not known significant effects or critical hazards. Reproductive toxicity: Not known significant effects or critical hazards. STOT, RE: Category 1 hazard; effects on skin, liver, kidney, blood system.</p> |
| Nonylphenol, CAS #: 84852-15-3 | <p>Acute Toxicity Oral LD50 (Rat): 1,412 mg/kg Dermal LD50 (Rabbit): 2,031 mg/kg Inhalation LC50 (Rat): No data available Skin corrosion/irritation (Rabbit), 4hrs: Causes burns (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit), 72hrs: Corrosive (OECD Test Guideline 405) STOT, SE: No data available Aspiration hazard: No data available</p> <p>Chronic Toxicity Sensitization, skin and respiratory (Guinea pig): Not sensitizing (Guinea pig maximization test) (OECD Test Guideline 406) Germ cell mutagenicity: Not genotoxic Carcinogenicity: 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 and ACGIH. Reproductive toxicity: The results of animal studies suggest a fertility impairing effect. Rat, Oral / Effects on newborn: growth statistics (e.g.,</p> |

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| Distillates (Petroleum), Hydrotreated Light, CAS #: 64742-47-8 | <p>reduced weight gain). Suspected human reproductive toxicant. STOT, RE: central nervous system by skin absorption; Category 2</p> <p>Basis for Assessment: Information given is based on product data, knowledge of the components and the toxicology of similar products.</p> <p><u>Acute Toxicity</u> Oral LD50 (Rat): LD50: >5,000 mg/kg; Low toxicity. Dermal LD50 (Rabbit): LD50 >2,000 mg/kg; Low toxicity. Inhalation LC50 (Rat), 4hrs: LC50 >5 mg/L; Low toxicity. Inhalation of vapors or mists may cause irritation to the respiratory system. Skin corrosion/irritation (Rabbit), 4hrs: Irritating to skin. The liquid defats the skin. Serious eye damage/eye irritation (Rabbit), 72hrs: Slightly irritating. STOT, SE: High concentrations may cause central nervous system depression resulting in headaches, dizziness and nausea; continued inhalation may result in unconsciousness and/or death. Aspiration Hazard: Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis which can be fatal.</p> <p><u>Chronic Toxicity</u> No known chronic health effects. Sensitization, skin and respiratory (Guinea pig): Not a skin sensitizer. Germ cell mutagenicity: Not considered a mutagenic hazard. Carcinogenicity: Not classified as a carcinogen. Repeated skin contact has resulted in irritation and skin cancer in animals. Reproductive toxicity: Not expected to impair fertility. Not classified as a developmental toxicant. STOT, RE: No data available Reports have associated repeated and prolonged occupational exposure to solvents with permanent brain and nervous system damage. Kidney: caused kidney effects in male rats which are not considered relevant to human Intentional misuse by deliberately concentrating and inhaling vapors may be harmful or fatal.</p> <p><u>Experience with human exposure:</u> Inhalation: High concentrations (>700 ppm) of vapors/mists may be irritating to the respiratory tract. May cause headaches, dizziness, nausea, vomiting; CNS depression (drowsiness, loss of coordination, fatigue). Skin contact: Contact may cause irritation. Eye contact: Contact may cause irritation. Ingestion: Ingestion may irritate the digestive tract; high dosages may cause CNS depression.</p> |
| Xylene, CAS #: 1330-20-7 | <p>Can affect by inhalation and skin absorption.</p> <p><u>Acute Toxicity</u> Oral LD50 (Rat): 3,523 mg/kg Dermal LD50 (Rabbit): 12,126 mg/kg Inhalation LC50 (Rat, gas), 4hrs: 5,000 ppm; Can irritate the nose and throat causing coughing and wheezing. Skin corrosion/irritation (Rabbit), 24hrs: irritating. Serious eye damage/eye irritation (Rabbit): Moderate eye irritation STOT, SE: May cause respiratory irritation. May cause drowsiness and dizziness. Aspiration hazard: May be fatal if swallowed and enters airways.</p> <p><u>Chronic toxicity</u> Sensitization, skin and respiratory: No data available. Germ cell mutagenicity: No data available. Carcinogenicity: IARC: Group 3: Not classifiable as to its carcinogenicity to humans Reproductive toxicity: May damage the developing fetus. STOT, RE: Prolonged inhalation may result in headache, dizziness, nausea, loss of concentration, memory and muscle coordination, tremors, irritability and blurred vision, irritation of mucous membrane pneumonitis and pulmonary edema. May cause mild changes in liver function, kidney impairment, hyperplasia and blood abnormalities. Effects on skin: defatting and dermatitis. Odor is not an adequate warning for overexposure to xylene. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.</p> |

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Acutely and chronically hazardous for aquatic organisms.

Persistence and degradability: Expected to be moderately biodegradable based on components info.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: Toxic to aquatic life with long lasting effects. Do not allow product to reach ground water, water course or sewage system. Danger to drinking water if even small quantities leak into the ground.

Ecotoxicity test results: Not available for the mixture. Results for components:

| Components | Test Results |
|---|--|
| Diglycidyl Ether of Bisphenol A Homopolymer, CAS #: 25085-99-8 | <p><u>Acute Toxicity:</u> Fish: LC50 (fathead minnow), 96hrs: 3.1 mg/L (OECD Guideline 203, static) Fish: LC50 (rainbow trout), 96hrs: 2 mg/L (semi-static) Aquatic invertebrates: EC50 (Daphnia magna), 48hrs: 1.8 mg/L (OECD Guideline 202, part 1, static) Aquatic plants ErC50 (fresh water algae), 72hrs: 11 mg/L (Growth rate inhibition, static test) Microorganisms, IC50 (Bacteria), 18hrs: > 42.6mg/L (Respiration rates)</p> <p><u>Chronic toxicity:</u> Aquatic invertebrates: EC50 (Daphnia magna), 21days: 0.55 mg/L (Maximum Acceptable Toxicant Level, semi-static, number of offspring)</p> <p><u>Ecological Data:</u> Biodegradability, 28days: 12% BOD of the ThOD; Not readily biodegradable (OECD Guideline 302 B); however, these results do not necessarily mean that the material is not biodegradable under environmental conditions. Theoretical Oxygen Demand: 2.35 mg/mg Estimated. Photodegradation: Atmospheric half-life: 1.92 hours (Half-life (indirect photolysis), estimated) Bioaccumulative potential: Moderate (BCF 100-3,000 or Log Pow between 3 and 5). Mobility in soil: Low (Koc 500-2,000) Based on its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. Henry's Law Constant (H): $\leq 6.94E-09 \text{ atm} \cdot \text{m}^3/\text{mole}$; @25 °C Estimated. Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process. Partition coefficient, n-octanol/water (log Pow): 3.7 - 3.9 Measured; 3.242 at 25 °C Estimated. Mobility in soil: Partition coefficient, soil organic carbon/water (Koc): 1,800 - 4,400 Estimated.</p> |

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| Confidential Component 1, CAS #: Trade Secret | <u>Aquatic toxicity</u> An environmental hazard. Toxic to aquatic life with long lasting effects. <u>Acute Toxicity</u> Fish: LC50 (rainbow trout), 96hrs: 1-10 mg/L (OECD Guideline 203) Aquatic invertebrates: EC50 (Daphnia magna), 48hrs: 1-10 mg/L (OECD Guideline 202) Aquatic plants: EC50 (green algae), 96hrs: 1-10 mg/L (OECD Guideline 201) Bioaccumulative potential (fathead minnow), 28days: low Partition coefficient, n-octanol/water (log Pow): 2-3 |
| Nonylphenol, CAS #: 84852-15-3 | <u>Aquatic toxicity</u> An environmental hazard. Very toxic to aquatic life with long lasting effects. <u>Acute Toxicity</u> Fish (fathead minnow), 96hrs: LC50: 0.209 mg/L Aquatic invertebrates (Daphnia magna), 48hrs: EC50: 0.0844 mg/L Aquatic plants (green algae), 72hrs: EC50: 0.33 mg/L <u>Ecological Data</u> Biodegradability (aerobic), 28days: 62% BOD: Readily biodegradable (OECD Test Guideline 301F) Remarks: The 10 day time window criterion is not fulfilled. Bioaccumulative potential (fathead minnow), 28days: Bioconcentration factor (BCF): 740 Mobility in soil: low. |
| Distillates (Petroleum), Hydrotreated Light, CAS #: 64742-47-8 | Basis for Assessment : Information given is based on product data, a knowledge of the components and the ecotoxicology of similar products. <u>Aquatic toxicity:</u> An environmental hazard. Very toxic to aquatic life with long lasting effects. <u>Acute Toxicity:</u> Fish: LC50 (rainbow trout), 96hrs: 2.9 mg/L Aquatic invertebrates: EC50 (Daphnia magna), 48hrs: 1.4 mg/L (OECD Test Guideline 202); Aquatic plants: EC50 (green algae), 72hrs: 1-10 mg/L; Microorganisms : EC50: >100 mg/L <u>Chronic Toxicity:</u> Fish: NOEC/NOEL expected to be 0.1-1.0 mg/L (based on modeled data) Aquatic invertebrates: NOEC/NOEL expected to be 0.1-1.0 mg/L <u>Ecological Data:</u> Biodegradability (aerobic), 28days: Expected to be inherently biodegradable. The volatile constituents will oxidize rapidly by photochemical reactions in air. Bioaccumulative potential: Contains constituents with the potential to bioaccumulate. Mobility in soil: Floats on water. Contains volatile constituents. Evaporates within a day from water or soil surfaces. Large volumes may penetrate soil and could contaminate groundwater. PBT and vPvB assessment: The substance does not fulfill all screening criteria for persistence, bioaccumulation and toxicity and hence is not considered to be PBT or vPvB. Other Adverse Effects: Films formed on water may affect oxygen transfer and damage |
| Xylene, CAS #: 1330-20-7 | Toxic to aquatic life. <u>Acute toxicity</u> Fish: LC50 (rainbow trout), 96hrs: 3.3 mg/L Aquatic invertebrates: EC50 (Daphnia magna), 24hrs: 75.49 mg/L Aquatic plants: EC50 (green algae), 14days: 72 mg/L (Growth inhibition) <u>Chronic toxicity:</u> No sufficient data available for classification. <u>Ecological Data</u> Biodegradation: Readily biodegradable. In air, xylenes degrade by reacting with photochemically produced hydroxyl radicals. In soil it will volatilize and leach into groundwater. Little bioconcentration is expected. Atmospheric fate: According to a model of gas/particle partitioning of semivolatile organic compounds in the atmosphere, xylene, which has an experimental vapor pressure of 7.99 mm Hg at 25 deg C, will exist solely as a vapor in the ambient atmosphere. Vapor-phase xylene is degraded in the atmosphere by reaction with photochemically-produced hydroxyl radicals; the atmospheric lifetime of xylene is about 14-26 hours. Ambient levels of xylene are detected in the atmosphere due to large emissions of this compound. Bioaccumulation: Not significant; BCF values: freshwater fish: 1-15 and saltwater fish and invertebrates: 1-24 in, and uptake and depuration both occurring rapidly. Results of PBT and vPvB assessment: No data available |

SECTION 13 – DISPOSAL CONSIDERATIONS



Product Disposal: The generation of waste should be avoided or minimized wherever possible. Do not discharge into any sewers, on the ground, or into any body of water. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. All disposal practices must be in compliance with local, state and federal regulations via licensed waste disposal contractor.

Note: contains Xylenes, CAS #: 1330-20-7: RCRA Code: U239, RQ: 1,000 lbs

Container disposal: Even after emptying, container may retain residues. Empty containers should be completely drained and safely stored until appropriately reconditioned or disposed through licensed contractor in accordance with government regulations. This material and its container must be disposed of in a safe way.

SECTION 14 – TRANSPORT INFORMATION

| | Land transport, U.S. DOT | Sea transport, IMDG: | Air transport, IATA/ICAO: |
|------------------------------------|--------------------------|---|---|
| UN number: | Non-regulated | UN 3082 | UN 3082 |
| UN proper shipping name: | | Environmentally hazardous substance, liquid, n.o.s. (Epoxy resin) | Environmentally hazardous substance, liquid, n.o.s. (Epoxy resin) |
| Transport hazard class(es): | | 9 | 9 |
| Packing group: | | III | III |

| | | | |
|----------------------|--|--|---|
| Hazard Label | |  |  |
| Special precautions: | | Marine pollutant: yes EMS Code: F-A,S-F | |

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code: Consult IMO regulations before transporting over ocean in bulk

SECTION 15 – REGULATORY INFORMATION

U.S. Regulations:

OSHA HCS: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29CFR 1910.1200.

TSCA Regulations:

All components of this product are listed or are exempt from TSCA Inventory requirements under 40 CFR 720.30.

EPCRA Section 302 (40 CFR Part 355) (Emergency Response Planning, Extremely Hazardous Substance):

No components are subject to the reporting.

EPCRA Section 304 (40 CFR Part 355) (Emergency Release Notification Requirements):

No components are subject to the reporting.

EPCRA Sections 311 & 312 (Hazardous Chemical Inventory Reporting, Hazard Categories):

Acute Health Hazard, Chronic health hazard

EPCRA Section 313 (40 CFR Part 372) (Toxic Chemical Release Inventory Reporting):

No components of this product are present above De Minimis level and therefore do not require reporting.

- o Xylenes, CAS #: 1330-20-7: in product: 0.03 – 0.3%; De Minimis: 1%;

CERCLA Sections 102-103 (40 CFR Part 302) (Hazardous Substances Release Notification):

The following components are subject to the reporting if a criterion of reportable quantity is fulfilled:

- o Xylenes, CAS #: 1330-20-7: RQ: 100 lbs

Clean Air Act:

- Ozone Depleting Substances (ODS): This product does not contain and is not manufactured with ozone depleting substances.
- Hazardous Air Pollutants, OSHA, Section 112(b), Table Z-1: The following components are listed:

| Substance | Regulatory Limits | | | Recommended Limits | |
|---|-------------------|-------------------|---|--------------------------------------|-------------------------------|
| | OSHA PEL | | Cal/OSHA PEL (as of 4/26/13) | NIOSH REL (as of 4/26/13) | ACGIH® 2015 TLV® |
| | ppm | mg/m ³ | 8-hour TWA, mg/m ³ | Up to 10-hour TWA, mg/m ³ | 8-hour TWA, mg/m ³ |
| Distillates (Petroleum), Hydrotreated Light, CAS #: 64742-47-8 | 500 | 2,000 | 1,600 ppm | 350 (C) 1,800 (15min) | See TLV Book Appendix H |
| Xylenes, CAS #: 1330-20-7 | 100 | 435 | 100 ppm; (ST) 150 ppm; (C) 300ppm | 100 ppm; (ST) 150 ppm; | 100 ppm; (ST) 150 ppm; |

ppm-parts per million; C-Ceiling; STEL-Short term exposure level

Clean Water Act:

- Section 307(a) (Toxic pollutants): No components are listed.
- Section 311(b)(2): Table 116.4A (Hazardous chemicals) / Table 117.3 (RQ):
 - o Xylenes, CAS #: 1330-20-7

NFPA rating: Health: 2 Fire: 1 Reactivity: 2 Special: -

HMIS rating: Health: 2 Flammability: 1 Physical hazard: 2

RCRA Code: Xylenes, CAS #: 1330-20-7: Hazardous Waste #: U239 RQ: 1,000 lbs

State Regulations:

California Prop. 65 Components:

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

Instruction: for regulatory information on components of this mixture, check the appropriate state websites.

International Regulations/Inventories:

Canada: All ingredients of this product are listed or are exempt from the DSL.

SECTION 16 – OTHER INFORMATION

LEGEND

| | |
|-------|---|
| GHS | Globally Harmonized System |
| CAS | Chemical Abstracts Services |
| EC | European Community |
| EPA | Environmental Protection Agency |
| OSHA | Occupational Safety and Health Administration |
| ACGIH | American Conference of Governmental Industrial Hygienists |
| NIOSH | National Institute of Occupational Safety and Health |
| PEL | Permissible Exposure Limits |

| | |
|------------|--|
| TLV | Threshold Limit Value |
| REL | Recommended Exposure Limit |
| TWA | Time-Weighted Average |
| STEL | Short-term exposure limit |
| IARC | International Agency for Research on Cancer |
| NTP | National Toxicology Program |
| STOT, SE | Specific Target Organ Toxicity following Single Exposure |
| STOT, RE | Specific Target Organ Toxicity following Repeated Exposure |
| DOT | Department of Transportation |
| IMDG | International maritime dangerous goods code |
| IATA, ICAO | International Air Transport Association, International Civil Aviation Organization |
| TSCA | Toxic Substances Control Act |
| EPCRA | Emergency Planning and Community Right-to-Know Act |
| CERCLA | Comprehensive Environmental Response, Compensation and Liability Act |
| CFR | Code of Federal Regulations |
| RQ | Reportable Quantity |
| TQ | Threshold Quantity |
| TPQ | Threshold Planning Quantity |
| EHS | Extremely Hazardous Substances |
| DSL | Domestic Substance List |
| WHMIS | Workplace Hazardous Materials Information System |

Latest revision date: April 21, 2016

Date of the previous revision: February 1, 2016 – Preparation of SDS in accordance to the GHS requirements

Disclaimer: The data set forth in this sheet are based on information provided by the suppliers of the raw materials and chemicals used in the manufacture of the aforementioned product. Rhino Linings Corporation makes no warranty with respect to the accuracy of the information provided by their suppliers, and disclaims all liability of reliance thereof.