

PRODUCT NAME(S): MF-B Series Epoxy Hardeners (Part B)
SECTION 1 – IDENTIFICATION

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

Product name: MF-B Series Epoxy Hardeners (Part B)
Chemical Family: Epoxy Hardener

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 05



GHS 08



GHS 07

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute toxicity, Oral	4	H303	Harmful if swallowed
Acute Toxicity, Dermal	4	H312	Harmful in contact with skin
Acute Toxicity, Inhalation	4	H332	Harmful if inhaled
Skin corrosion / Irritation	1B	H314	Causes severe skin burns and eye damage
Serious eye damage / Eye irritation	1	H318	Causes serious eye damage
Skin Sensitization	1	H317	May cause an allergic skin reaction
Germ cell mutagenicity	2	H341	Suspected of causing genetic defects
Specific target organ toxicity, single exposure	3	H335	May cause respiratory irritation
Specific target organ toxicity, repeated exposure	2	H373	May cause damage to respiratory system, eyes, skin, liver, kidney, pancreas, nervous system through prolonged or repeated exposure
Aquatic Hazard, Acute	3	H402	Harmful to aquatic life
Aquatic Hazard, Chronic	3	H412	Harmful to aquatic life with long lasting effects

Precautionary Statements:

Prevention:	P201 P202 P281 P260 P270 P280 P264 P272 P271 P273	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Do not breathe the mist, vapors, spray. Do not eat, drink, and smoke when using this product. Wear protective gloves/ protective clothing / eye protection/ face protection. 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:	P301 + P330 + P312 P331 P303 + P361 + P353 P333 + P313 P363 P305 + P351 + P338 P310 P304 + P340 + P310 P308 + P313	IF SWALLOWED: Rinse mouth. Call a POISON CENTER or physician if you feel unwell. Do not induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician. IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or doctor/physician. IF exposed or concerned: Get medical advice/attention.

Released: February 22, 2016

Storage: P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 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, %
Copolymer of benzenamine and formaldehyde, hydrogenated	135108-88-2	603-894-6	20 – 45
Benzyl Alcohol	100-51-6	202-859-9	20 – 45
Confidential Component 1	Trade Secret	Trade Secret	5 – 25
Triethylenetetramine	112-24-3	203-950-6	1 – 10
Phenol	108-95-2	203-632-7	1 – 10
Confidential Component 2	Trade Secret	Trade Secret	1 – 10

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

Inhalation: Immediate medical attention required. Remove victim to fresh air and keep at rest in a position comfortable for breathing.
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. The exposed person should be kept under medical surveillance for 48 hours.

Skin: Immediate medical attention required. Chemical burns must be treated promptly by a physician or dermatologist. 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.

Eye: Immediate medical attention required. Chemical burns must be treated promptly by a physician or ophthalmologist. 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.

Ingestion: Immediate medical attention required. Remove victim to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any.
If the exposed person is conscious, rinse mouth with water and then give plenty of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Do not induce vomiting unless directed to do so by medical personnel.
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 details.**General advice for First Aid responders:** No action should be taken involving any personal risk or without suitable training. If potential for exposure exist refer to Section 8 for specific personal protective equipment. 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. Symptoms of poisoning may even occur after several hours. 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.

Released: February 22, 2016

Note: contains Phenol, CAS #: 108-95-2: Flash point: 79.0°C (174.2°F) - Combustible Liquid, Category 4 per GHS.

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. Do not breath 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. Harmful to the environment. 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. Wash the spill site with decontamination solution or with soap and water. Scrubbing the surface with a broom or brush helps the decontamination solution to penetrate into porous surfaces. Remove waste container to 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. 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.

Do not use sodium nitrite or other nitrosating agents in formulations containing this product. Suspected cancer-causing nitrosamines could be formed.

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.

Storage stability: Stable under normal conditions.

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: Provide natural or explosion-proof ventilation adequate to ensure concentrations are kept below exposure limits.

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 discarded.

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. Emergency showers and eye wash stations should be readily accessible

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Odor:	Irritating, Ammonia-like
Odor threshold:	Not available
pH:	~10
Melting point/ freezing point:	Not available
Initial boiling point and boiling range:	≈200°C
Flash point:	Expected to be between 105-135°C (221-276°F).
Evaporation rate:	Not available
Flammability (solid, gas):	Not applicable
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	<1.00 mmHg at 70°F (21°C)
Vapor density:	Not available for mixture;
Relative density:	1.05-1.10 g/cm ³ @ 20°C (68°F)
Solubility (water):	Not available
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not available

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: Product will not undergo hazardous polymerization. Corrosion to metals: Not known. Based on its structural properties the product is not classified as oxidizing. Does not form flammable gases in the presence of water.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance.

Conditions to avoid: Unintentional contact with moisture, excessive heat, open flame and sparks.

Incompatible materials: Strong oxidizing and reducing agents. Amines, bases, mineral and organic acids, reactive metals (sodium, calcium, zinc, etc.), copper, aluminum and zinc alloys.

CAUTION! N-Nitrosamines, many of which are known to be potent carcinogens, may be formed when the product comes in contact with nitrous acid, nitrites or atmospheres with high nitrous oxide concentrations. Product slowly corrodes copper, aluminum, zinc and galvanized surfaces. Reaction with peroxides may result in violent decomposition of peroxide possibly creating an explosion.

Hazardous decomposition products: Depend upon temperature, air supply and presence of other materials. Can include, but are not limited to carbon and nitrogen oxides, nitric acid, nitrosamine, ammonia gas, amines, aldehydes, hydrogen cyanide, flammable hydrocarbon fragments, organic acid vapors. Nitrogen oxide can react with water vapors to form corrosive nitric acid.

SECTION 11 – TOXICOLOGICAL INFORMATION

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

Symptoms of exposure:

Acute toxicity:

Oral: Harmful if swallowed. May cause burns to mouth, throat and stomach. Adverse symptoms may include abdominal pain, nausea and diarrhea.

Dermal: Harmful in contact with skin. Adverse symptoms may include pain or irritation, redness, blistering and burns.

Inhalation: Harmful if inhaled. Can cause severe eye, skin and respiratory system irritation. Adverse symptoms may include nausea, headache and difficulties with breathing.

Skin corrosion / irritation:

Corrosive! Contact may result in pain, severe local redness, burns and tissue damage. Prolonged contact may result in absorption of harmful amounts. A more severe response may be expected if skin is abraded (scratched or cut).

Serious eye damage / eye irritation:

Causes serious eye damage. Adverse symptoms may include tearing, redness, swelling, burning and blindness.

Specific target organ toxicity, single exposure:

- o Confidential Component 1, CAS #: Trade Secret: May cause respiratory irritation.

Aspiration hazard: Not an aspiration hazard.

Chronic toxicity:
Respiratory and Skin Sensitizer:

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

- o Copolymer of benzenamine and formaldehyde, hydrogenated, CAS #: 135108-88-2: skin sensitizer
- o Confidential Component 1, CAS #: Trade Secret: skin sensitizer
- o Triethylenetetramine, CAS #: 112-24-3: skin sensitizer

Germ cell mutagenicity:

This product contains component(s) suspected to have mutagenic effect.

- o Phenol, CAS #: 108-95-2

Carcinogenicity:

Based on available information, this product does not contain component(s) known or reported to be carcinogenic by IARC, NTP, EPA, OSHA, ACGIH.

- o Phenol, CAS #: 108-95-2: IARC: Group 3 (Not classifiable as to its carcinogenicity to humans).

Reproductive toxicity:

Insufficient data for classification.

Specific target organ toxicity, repeated exposure:

Respiratory system, eyes, skin, liver, kidney, pancreas, nervous system.

Medical conditions aggravated by overexposure:

Respiratory system, eyes, skin, liver, kidney, pancreas and neurological disorders, if product is handled without adequate protection.

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

Components	Test Results
Copolymer of benzenamine and formaldehyde, hydrogenated, CAS #: 135108-88-2	Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause an allergic skin reaction. May cause damage to kidney by ingestion.
Benzyl Alcohol, CAS #: 100-51-6	<u>Acute toxicity:</u> Oral (Rat): LD50: 1,230 mg/kg; Harmful if swallowed. May cause abdominal pain, nausea, vomiting and diarrhea. May cause nervous system effects with dizziness, incoordination, headache, numbness, confusion. Dermal (Rabbit): LD50: 2,000 mg/kg Inhalation (Rat) (vapor), 4hrs: LC50: >5,000 mg/m ³ ; Harmful if inhaled. May cause respiratory tract irritation with symptoms of coughing, sore throat, runny nose. May cause nervous system effects including nausea, dizziness, lightheadedness, incoordination, headache, numbness, confusion. Skin corrosion/irritation (Rabbit), 24hrs: non-irritant (OECD Test Guideline 404) May be absorbed through the skin. If sufficient amounts are absorbed, systemic toxicity may occur with symptoms similar to those noted for inhalation. Prolonged or repeated contact may cause dermatitis with symptoms of red, itchy, dry skin; may cause an allergic reaction in sensitive individuals. Serious eye damage/eye irritation (Rabbit), 24hrs: causes serious eye irritation. (OECD Test Guideline 405). May cause moderate irritation with symptoms of reddening, tearing and stinging. Prolonged vapor contact may cause conjunctivitis. STOT, SE: Product not classified based on available data. Aspiration hazard: No data available. <u>Chronic toxicity:</u> Respiratory or skin sensitization (guinea pig): non-sensitizer. Germ cell mutagenicity: Not classified as mutagenic. in vitro: Ames: negative (Salmonella typhimurium, with/without metabolic activation). Chromosome aberration test: positive (Chinese hamster ovary cells without metabolic activation). Positive and negative results were seen in various in vitro studies. in vivo: Micronucleus assay: negative results were reported in various studies (mouse, male, intraperitoneal). Carcinogenicity: Not classified as carcinogenic. No carcinogenic effects were observed at the doses tested (rat, male/female, oral, 2 yrs, daily) (mouse, male/female, oral, 2 yrs, daily). Reproductive toxicity: Not classified as reproductive toxin. No effects on reproductive parameters observed at doses tested (Fertility Screening, oral, rat, female, NOAEL (parental): 5 mg/kg). Three generation study (oral, rat, male/female) NOAEL (parental): >750 mg/kg, NOAEL (F1): >750 mg/kg, NOAEL (F2): >750 mg/kg; Developmental Toxicity/Teratogenicity: No fetotoxicity and no teratogenic effects observed at the doses tested (rat, male/female, oral daily, NOAEL: 750 mg/kg). STOT, RE: Repeated ingestion may cause liver and kidney damage and blood disorders. Prolonged/repeated inhalation may cause lung damage. Liver - Irregularities - Based on Human Evidence, Central nervous system depression, stupor, narcosis
Confidential Component 1, CAS #: Trade Secret	Harmful if swallowed. Harmful in contact with skin. Causes severe skin burns and eye damage. Causes serious eye irritation.

	<p>May cause respiratory system irritation. May cause an allergic skin reaction.</p>
Triethylenetetramine, CAS #: 112-24-3	<p><u>Acute Toxicity</u> Oral LD50 (Rat): 2,500 mg/kg; May be harmful if swallowed. Dermal LD50 (Rabbit): 550 mg/kg; Toxic in contact with skin. Inhalation: Extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Adverse effects: Cough, shortness of breath, headache, nausea. Skin corrosion/irritation (Rabbit), 24hrs: Causes severe skin burns and eye damage. (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit), 72hrs: Causes serious eye damage. (OECD Test Guideline 405) STOT, SE: No data available Aspiration hazard: No data available.</p> <p><u>Chronic Toxicity</u> Sensitization, skin and respiratory: Skin Sensitizer Germ cell mutagenicity: In vitro, Bacteria Metabolic activation: Positive; In vivo, Mammalian Animal Cell, Somatic: Negative 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: No data available STOT, RE: Oral, 26weeks: NOAEL: 50 mg/kg/d</p>
Phenol, CAS #: 108-95-2	<p><u>Acute Toxicity:</u> Oral LD50 (Rat): 317 mg/kg (Behavioral: Convulsions or effect on seizure threshold); Harmful if swallowed. Dermal LD50 (Rabbit): 630 mg/kg; Toxic if absorbed through skin. Causes skin burns. Inhalation LC50 (Rat), 8hrs: 900 mg/m³; Toxic if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract. Skin corrosion/irritation (Rabbit), 24hrs: Severe skin irritation. Rapidly absorbed through skin. Serious eye damage/eye irritation (Rabbit): Severe eye damage. STOT, SE: No data available. Aspiration hazard: No.</p> <p><u>Chronic Toxicity:</u> Sensitization, skin and respiratory: No data available. Germ cell mutagenicity: In vitro tests showed mutagenic effects. Carcinogenicity: IARC: Group 3 (Not classifiable as to its carcinogenicity to humans). Reproductive toxicity: No data available. STOT, RE: Target Organs: Central nervous system, Kidney, Liver, Pancreas, Spleen. Toxic by inhalation, ingestion and skin absorption. Extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, skin, liver, kidneys. Symptoms: inflammation and edema of the larynx and bronchi, pneumonitis, pulmonary edema, burning sensation, cough, wheezing, laryngitis, shortness of breath, headache, nausea, vomiting, circulatory collapse, tachypnea, paralysis, convulsions, coma, necrosis of mouth and gastrointestinal tract, jaundice, respiratory failure, cardiac arrest; irritation eyes, nose, throat; anorexia, weight loss; lassitude (weakness, exhaustion), muscle ache, pain; dark urine; cyanosis; liver, kidney damage; skin burns; dermatitis; tremor, convulsions, twitching. Absorption of phenolic solutions through the skin may be very rapid and can cause damage to the kidneys, liver, pancreas and spleen, and edema of the lungs.</p>
Confidential Component 2, CAS #: Trade Secret	<p><u>Acute Toxicity:</u> Oral LD50 (Rat, male and female): 300-2,000 mg/kg. Harmful if swallowed. Dermal LD50 (Rabbit): > 1,000 mg/kg Inhalation: No data available. Skin corrosion/irritation (Rabbit), 24hrs: Corrosive. Causes severe skin burns. Serious eye damage/eye irritation (Rabbit), 24hrs: Corrosive. Causes serious eye damage. STOT, SE: No data available Aspiration hazard: No data available</p> <p><u>Chronic Toxicity:</u> Sensitization, skin and respiratory: May cause sensitization by skin contact (Buehler Test, guinea pig) (OECD Test Guideline 406) Germ cell mutagenicity: negative in Ames and micronucleus test. 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 (Rat, male/female): No data available. STOT, RE: May cause damage to organs through prolonged or repeated exposure by ingestion. Liver, Musculo-skeletal system. Oral (Rat, male and female): NOAEL: 15-50 mg/kg Extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin. Adverse effects: cough, shortness of breath, headache, nausea.</p>

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Acutely and chronically hazardous for aquatic organisms. Do not allow product to reach ground water, water course or sewage system.

Persistence and degradability: Mixture consists of biodegradable and non-biodegradable components.

Bioaccumulative potential: Not known.

Mobility in soil: Not known.

Other adverse effects: Not known.

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

Components	Test Results
Copolymer of benzenamine and formaldehyde, hydrogenated, CAS #: 135108-88-2	Harmful to aquatic life with long lasting effects.
Benzyl Alcohol, CAS #: 100-51-6	<p><u>Acute toxicity:</u> Toxic to aquatic life. Fish (Bluegill), 96hrs: LC50: 10 mg/L; (fathead minnow), 96hrs: LC50: 460 mg/L Aquatic invertebrates (Daphnia magna), 24hrs: EC50: 55 mg/L; 48hrs: 230 mg/L (OECD Test Guideline 202)</p> <p><u>Ecological Data:</u></p>

Released: February 22, 2016

	Persistence and degradability: Readily biodegradable; 92-96% in 28 days (OECD Test Guideline 301C) Bioaccumulative potential: No data available. Mobility in soil: Not data available. PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
Confidential Component 1, CAS #: Trade Secret	Harmful to aquatic life with long lasting effects.
Triethylenetetramine, CAS #: 112-24-3	<u>Acute toxicity:</u> Harmful to aquatic life. <u>Chronic toxicity:</u> Harmful to aquatic life with long lasting effects. <u>Ecological Data:</u> Biodegradability: Not readily biodegradable, but it does biodegrade slowly in the environment. Therefore, it would not persist in the environment and would be removed by normal wastewater-treatment processes. Bioconcentration potential: low Mobility in soil: very high.
Phenol, CAS #: 108-95-2	<u>Acute Toxicity:</u> Harmful to aquatic life. Fish (Golden orfe), 48hrs: EC50: 14-25 mg/L; (goldfish), 96hrs: LC50: 36.1-68.8 Aquatic invertebrates (Daphnia magna), 24hrs: EC50: 12 mg/L; (Daphnia magna), 24hrs: EC100: 100 mg/L Aquatic plants (Fresh water algae), 96hrs: EC50: 370 mg/L <u>Chronic toxicity:</u> Toxic to aquatic life with long lasting effects. <u>Ecological Data:</u> Persistence and degradability: No data available. Bioaccumulative potential: Low bioaccumulation potential. Mobility in soil: No data available. PBT/vPvB assessment: No data available.
Confidential Component 2, CAS #: Trade Secret	<u>Acute Toxicity:</u> Toxic to aquatic life. Fish (Golden orfe), 96hrs: LC50: 10-100 mg/L (DIN 38412, static) Aquatic invertebrates (Daphnia magna), 48hrs: EC50: 1-10 mg/L Aquatic plants (green algae), 72hrs: IC50: 700mg/L; EC50: 100 mg/L Microorganisms (bacteria), 30min: EC50: 100 mg/L <u>Chronic toxicity:</u> Toxic to aquatic life with long lasting effects. <u>Ecological Data:</u> Persistence and degradability: Not readily biodegradable. Exposure time: 28 days: <10%. Bioaccumulative potential: Low bioaccumulation potential. Does not bioaccumulate. Mobility in soil: 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.

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 hardener)	Environmentally hazardous substance, liquid, n.o.s. (Epoxy hardener)
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):

The following component is subject to the reporting if a criterion for TPQ is reached:

- o Phenol, CAS #: 108-95-2: TPQ: 500/10,000 lbs

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

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

- o Phenol, CAS #: 108-95-2: EHS RQ: 1,000 lbs

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):

Contains a component that is subject to the reporting.

- Phenol, CAS #: 108-95-2: De Minimis: 1%

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

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

- Phenol, CAS #: 108-95-2: RQ: 1,000 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:

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
Phenol, CAS #: 108-95-2	5	19	5 ppm	5 ppm; (C) 15.6 ppm (15 min)	5 ppm

ppm-parts per million; (C)-ceiling

Exposure limits:

- Benzyl alcohol, CAS #: 100-51-6: TWA WEEL: 10 ppm / 44.20 mg/m³
- Triethylenetetramine, CAS #: 112-24-3: TWA WEEL: 1 ppm / 6 mg/m³

Clean Water Act:

- Section 307(a) (Toxic pollutants):
 - Phenol, CAS #: 108-95-2
- Section 311(b)(2): Table 116.4A (Hazardous chemicals) / Table 117.3 (RQ):
 - Phenol, CAS #: 108-95-2: RQ: 1,000 lbs

NFPA rating: Health: 3 Fire: 1 Reactivity: 1 Special: 0
HMIS rating: Health: 3 Flammability: 1 Physical hazard: 1

RCRA Code: Phenol, CAS #: 108-95-2: U188

State Regulations:

California Prop. 65 Components:

This product does not contain components 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:

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

WHMIS Classification (Controlled Products Regulations):

Class D2A: Material causing other toxic effects (Very toxic)

WHMIS Label Information:

Class D2B: Material causing other toxic effects (Toxic)

Class E: Corrosive



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: February 22, 2016

Date of the previous revision: December 18, 2015 – 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.