

PRODUCT NAME(S): SolarMax® 11-60 Resin

SECTION 1 – IDENTIFICATION

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

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

Product name: SolarMax® 11-60 Resin
Chemical Name: Polyamine Blend
Chemical Family: Aliphatic Polyurea Resin
Product Category: Component of Aliphatic Polyurea System
Recommended use: Spray Elastomer

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



GHS 09

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	4	H302	Harmful if swallowed
Acute Toxicity, Dermal	4	H312	Harmful in contact with skin
Skin corrosion / irritation	1C	H314	Causes severe skin burns and eye damage
Serious eye damage / Eye irritation	1	H318	Causes serious eye damage
Skin Sensitization	1A	H317	May cause an allergic skin reaction
Reproductive toxicity	2	H361	Suspected of damaging fertility or the unborn child by ingestion
Specific target organ toxicity, repeated exposure	1	H372	Causes damage to central nervous and immune system through prolonged or repeated exposure by ingestion
	2	H373	May cause damage to liver, kidney and pancreas through prolonged or repeated exposure May cause damage to lungs/respiratory system through prolonged or repeated exposure by inhalation
Aquatic Hazard, Acute	2	H401	Toxic to aquatic life
Aquatic Hazard, Chronic	2	H411	Toxic to aquatic life with long lasting effects

Precautionary Statements:

Prevention:	P201	Obtain special instruction before use.
	P202	Do not handle until all safety precautions have been read and understood.
	P281	Use personal protective equipment as required.
	P260	Do not breathe mist, vapors, spray.
	P270	Do not eat, drink, and smoke when using this product.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P272	Contaminated work clothing should not be allowed out of the workplace.
Response:	P273	Avoid release to the environment.
	P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P303 + P361 + P353	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
	P310	Immediately call a POISON CENTER or doctor/physician.
	P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
	P308 + P313	IF exposed or concerned: Get medical advice/attention.
	P363	Wash contaminated clothing before reuse.
	P391	Collect spillage.

Storage: 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: See Section 11.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration, %
Amines	Trade Secret	Trade Secret	10 – 45
Glycols	Trade Secret	Trade Secret	5 – 20
Zeolites	1318-02-1	930-915-9	5 – 10
Additive 1	Trade Secret	Trade Secret	5 – 10
Additive 2	Trade Secret	Trade Secret	1 – 5
Additive 3	Trade Secret	Trade Secret	1 – 5
Additive 4	Trade Secret	Trade Secret	0.1 – 2

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

Inhalation: Immediate medical attention required. Call a poison center or physician. Remove exposed person 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.

Skin: Immediate medical attention required. Call a poison center or physician. 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.

Eye: Immediate medical attention required. Call a poison center or physician. 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. Call a poison center or physician. Remove exposed person 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 more 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. Recommended medical monitoring for at least 24 hours. Certain ingredient of this product may cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom may include cyanosis. Immediately give oxygen if victim turns blue (lips, ears, fingernails). Since reversion of methemoglobin to hemoglobin occurs spontaneously after termination of exposure, moderate degrees of cyanosis need to be treated only by supportive measures.

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 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, hydrogen cyanide, lower molecular weight organic molecules.

Released: July 22, 2016

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. No action should be taken involving any personal risk or without suitable training. Spilled product will cause very slippery walking surfaces.

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.

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 soap and water. Cover container and remove from work to a well-ventilated area. 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. Approach release from upwind. 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 breathe 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.

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. Segregate from acids and acid forming substances.

Storage stability: Stable under normal conditions.

Storage temperature: 32 - 122°F (0 – 50°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 and PVC) should be worn always when working with this product. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose contaminated gloves after use in accordance with good laboratory practices. 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

Released: July 22, 2016

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.

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 eyewash fountains and safety shower should be in close proximity as a matter of good practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Liquid
Odor:	strong, amine-like
Odor threshold:	Not available
pH:	9 - 11
Melting point/ freezing point:	Not available
Initial boiling point and boiling range:	Not available
Flash point:	150°C (302 °F) (ASTM D-3243, D-3278, D-3828)
Evaporation rate:	Negligible
Flammability (solid, gas):	Not available
Upper/ lower flammability or explosive limits:	Not available
Vapor pressure:	Not available
Vapor density:	Not available
Relative density:	1.00-1.10 @ 25°C (77°F)
Solubility (water):	Partially soluble
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. Corrosive effects to metal are not anticipated. 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. Avoid unintended contact with isocyanates; the reaction will generate heat.

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

Incompatible materials: Strong oxidizing agents. Water, alcohols, amines, bases, acids, copper, aluminum and zinc alloys.

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, hydrogen cyanide, lower molecular weight organic molecules.

SECTION 11 – TOXICOLOGICAL INFORMATION

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

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

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, respiratory arrest.

- Amine 1, CAS #: Trade secret: Inhalation, skin absorption or ingestion may cause methemoglobin formation resulting in a reduced ability of the blood to carry oxygen; a symptom may include cyanosis (purplish-blue coloring of the skin, fingernails, and lips).

Skin corrosion / irritation:

Corrosive! Damages skin if not removed immediately. A more severe response may be expected if skin is abraded (scratched or cut).

Serious eye damage / eye irritation:

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

Specific target organ toxicity, single exposure:

Not classified. This product contains components that may cause respiratory irritation and drowsiness or dizziness after single exposure; however, their amount is not sufficient for classification.

- Glycol 1: Category 3, Central nervous system. May cause drowsiness or dizziness.
- Glycol 2: Category 3, Respiratory system. May cause respiratory irritation.

Aspiration hazard: Not an aspiration hazard.

Chronic toxicity:
Respiratory and Skin Sensitizer:

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

- Amine 2, CAS #: Trade Secret: skin sensitizer
- Additive 3, CAS #: Trade Secret: skin sensitizer
- Additive 4, CAS #: Trade Secret: skin sensitizer

Germ cell mutagenicity:

Based on available data, risk to humans is not expected from exposure to this product.

Carcinogenicity:

This product does not contain components known or reported to be carcinogenic by IARC, NTP, EPA, OSHA, ACGIH.

- Zeolites, CAS #: 1318-02-1: IARC: Group 3 (Not Classifiable as to its Carcinogenicity to Humans)
- Additive 1, CAS #: Trade Secret: IARC: Group 3 (Not Classifiable as to its Carcinogenicity to Humans)

Reproductive toxicity:

This product contains a component that is suspected reproductive hazard:

- Additive 2, CAS #: Trade Secret

Specific target organ toxicity, repeated exposure:

Liver, kidney, pancreas, lungs/respiratory, central nervous and immune system.

Medical conditions aggravated by overexposure:

Liver, kidney, pancreas, skin, lungs/respiratory, central nervous and immune system disorders if product is handled without adequate protection.

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

Components	Test Results
Amines, CAS #: Trade Secret	<p><u><i>Amine 1, CAS #: Trade Secret</i></u> Acute Toxicity Oral LD50 (Rat): 300-2,000 mg/kg (OECD Test Guideline 401) Dermal LD50 (Rat): >2,000 mg/kg (OECD Test Guideline 402) Skin corrosion/irritation (Rabbit): Non-irritating (OECD Test Guideline 404) Eye Irritation (Rabbit): Irritating (US-EPA)</p> <p>Chronic toxicity Skin Sensitization (guinea pig): Negative (intracutaneous test) Germ cell mutagenicity: Positive and negative results were seen in various in Vitro and in Vivo studies. Reproductive toxicity: Oral (Rat, females), Dose: 0, 50, 150, 500 mg/kg General Toxicity Maternal: No observed adverse effect level: 50 mg/kg body weight Teratogenicity: No observed adverse effect level: 500 mg/kg body weight Embryo-fetal toxicity: No observed adverse effect level: 150 mg/kg body weight Embryotoxic effects and adverse effects on the offspring were detected only at high maternally toxic doses (OECD Test Guideline 414) STOT, RE: Oral (Rat), 90 days, Dose: 50-125-320ppm, NOEL: ≥8 mg/kg; LOEL: ≥21 mg/kg; Dermal (Rabbit), 21 day, Dose: 1-10-100mg/kg, NOEL: ≥10 mg/kg Chronic ingestion may cause liver damage. Pancreas damage.</p> <p><u><i>Amine 2, CAS #: Trade Secret</i></u> Acute Toxicity Oral LD50 (Rat): 300 -2,000 mg/kg (OECD Test Guideline 401) Dermal LD50: (Rat): 1,000-2,000 mg/kg (OECD Guideline 402) Inhalation LC50 (Rat), 4hr: > 5 mg/L (OECD Guideline 403); Skin corrosion/irritation (Rabbit), 24hrs: Corrosive (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Corrosive (OECD Test Guideline 405) STOT, SE: no data available. Aspiration hazard: no data available.</p> <p>Chronic Toxicity Sensitization (Guinea pig): skin sensitizer (OECD Guideline 406, GPMT) and skin sensitizer (Human, Patch Test) Germ cell mutagenicity: Not mutagenic. in Vitro: Negative results reported in various studies. Ames (Salmonella typhimurium, Metabolic Activation: with/without); Chromosome aberration test (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without); Bacterial, gene mutation assay (Salmonella typhimurium, Metabolic Activation: with/without); Mammalian cell, gene mutation assay (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without) in Vivo: Negative. Micronucleus Assay (mouse, Male/Female, oral) Carcinogenicity: no data available Reproductive toxicity: Teratogenicity: Oral (Rat, female), day 6-19 p.c., daily, NOAEL: >250 mg/kg, NOAEL (maternal): 50 mg/kg STOT, RE: Oral (Rat), 13 weeks/daily: NOAEL: ca. 60 mg/kg and LOAEL: 160 mg/kg</p>
Glycols, CAS #: Trade Secret	<p><u><i>Glycol 1, CAS #: Trade Secret</i></u> Acute Toxicity Oral LD50 (Rat): 300-2,000mg/kg (OECD Test Guideline 401) Dermal LD50: (Rat): >2,000 mg/kg (OECD Guideline 402) Inhalation LC50 (Rat), 4hr: > 15 mg/L (OECD Guideline 436); Skin corrosion/irritation (Rabbit), 4hrs: Non-irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Non-irritating (OECD Test Guideline 405) STOT, SE: Central nervous system. May cause drowsiness or dizziness if ingested.</p>

	<p>Aspiration hazard: no data available</p> <p><u>Chronic Toxicity</u> Sensitization (Guinea pig): non-sensitizer (OECD Guideline 406, GPMT); dermal: non-sensitizer (Human, Patch Test) Germ cell mutagenicity: In vitro mammalian cell gene mutation test: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without) Carcinogenicity: Negative in animal experiments. 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: Fertility Screening: Oral (Rat), daily: NOAEL (parental): 200 mg/kg Teratogenicity: Oral (Mouse, female): NOAEL: 600 mg/kg, No effects observed at doses tested. Oral (Mouse, female) GD 6-15, daily: NOAEL: 100, NOAEL (maternal): 100 mg/kg STOT, RE: Oral (Rat), 180 Days: NOAEL: 25 mg/kg; Inhalation (Rat), 14days: NOAEL: 1.1 mg/L. Chronic exposure damages brain and central nervous system. Oral (Rat), daily: NOAEL: 200 mg/kg</p> <p><u>Glycol 2, CAS #: Trade Secret</u></p> <p><u>Acute Toxicity</u> Oral LD50 (Rat): 2,000 – 5,000 mg/kg (OECD Test Guideline 401) Dermal LD50: (Rat): >2,000 mg/kg (OECD Guideline 402) Skin corrosion/irritation (Rabbit), 4hrs: Non-irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Severely irritating (OECD Test Guideline 405) STOT, SE: Respiratory system. May cause irritation of respiratory tract. Aspiration hazard: no data available</p> <p><u>Chronic Toxicity</u> Sensitization (Guinea pig): non-sensitizer (OECD Guideline 406, GPMT) Germ cell mutagenicity: in Vitro: Ames: negative; in Vivo: Micronucleus Assay (mouse, oral): negative Carcinogenicity: no data available Reproductive toxicity: no data available STOT, RE: 28 days, oral: NOAEL: 1,000 mg/kg, (Rat, Male/Female, daily)</p> <p><u>Glycol 3, CAS #: Trade Secret</u></p> <p><u>Acute Toxicity</u> Oral LD50 (Rat): 2,000 mg/kg (OECD Test Guideline 401) Dermal LD50: (Rat): >5,000 mg/kg (OECD Guideline 402) Inhalation LC50 (Rat): >5 mg/L (4hrs, calculated) / > 4.5 mg/L (6hrs) Skin corrosion/irritation (Rabbit), 4hrs: Non-irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): Moderately irritating (OECD Test Guideline 405) STOT, SE: no data available Aspiration hazard: no data available</p> <p><u>Chronic Toxicity</u> Sensitization (Guinea pig): not skin sensitizer (OECD Guideline 406, GPMT) Germ cell mutagenicity: Not mutagenic. in Vitro: Chromosome aberration test: negative (Chinese hamster ovary (CHO) cells, Metabolic Activation: with/without); Ames test: negative (Salmonella typhimurium, Metabolic Activation: with/without) 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: Three generation study, Oral (Rat, male/female): NOAEL (parental): 1%, NOAEL (F1): 1%, NOAEL (F2): 1% STOT, RE: no data available</p>
Zeolites, CAS #: 1318-02-1	<p><u>Acute Toxicity</u> Oral LD50 (Rat): >5,110 mg/kg (OECD Guideline 401); May cause gastrointestinal tract irritation. Dermal LD50 (Rabbit): Not data available Inhalation LC50 (Rat)(dust/aerosol), 4hrs : >5.3 mg/L. Slightly irritant. Skin corrosion/irritation (Rabbit): Slightly irritant. May cause dehydration. Serious eye damage/eye irritation (Rabbit): Slightly irritant. May cause abrasion or mechanical irritation. STOT, SE: risk to humans is not expected from exposure to this product. Aspiration hazard: No</p> <p><u>Chronic toxicity</u> Sensitization, skin and respiratory: Not sensitizer (Guinea pig maximization test) Germ cell mutagenicity: Risk to humans is not expected from exposure to this product. Carcinogenicity: IARC: Group 3 (Not Classifiable as to its Carcinogenicity to Humans) Reproductive toxicity: No adverse effects in rats and rabbits or their offspring following administration in the drinking water during pregnancy. STOT, RE: Effects on kidney were observed in rats and dogs administered high dose levels in their feed for one month. Effect on blood, chronic pneumonitis and acute bronchopneumonia were observed in dogs. Long-term inhalation by rats and dogs produced inflammation in the lungs associated with accumulation of particulate.</p>
Additive 1, CAS #: Trade secret	<p><u>Acute toxicity:</u> Not an acute hazard. Inhalation: Dust in high concentrations may irritate the respiratory system. Ingestion: May cause discomfort if swallowed. Skin contact: Particles may cause mechanical skin irritation. Eye contact: Particles may cause mechanical eye irritation.</p> <p><u>Chronic toxicity:</u> Carcinogenicity: studies focused on the effects on the lungs and have been negative for pulmonary fibrosis, lung cancer, or mesothelioma. Warning! Product contains Quartz (0.8-1.3%) which can cause cancer. Risk of cancer depends upon duration and level exposure. STOT, RE: Prolonged exposure to excessive dust may affect pulmonary function.</p>
Additive 2, CAS #: Trade secret	<p><u>Acute Toxicity</u> Oral LD50 (Rat): 300-2,000 mg/kg; Harmful if swallowed. Based on laboratory data, ingestion may cause gastrointestinal irritation, nausea, vomiting, diarrhea, hunched posture, eye squinting, labored breathing, hyperactivity, depression, lack of coordination, and skinniness. Dermal LD50 (Rabbit): No data available. Inhalation: Excessive inhalation of vapor or mist may irritate the nose, throat and lungs; causing headache and nausea. Skin corrosion/irritation (Rabbit): causes irritation. Absorption through intact skin is possible. Serious eye damage/eye irritation (Rabbit): causes irritation. STOT, SE: No data available. Aspiration Hazard: No data available.</p> <p><u>Chronic toxicity</u> Respiratory or skin sensitization: No sensitizing effect known. Germ cell mutagenicity: No data available 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.</p>

	<p>Reproductive Toxicity: Developmental effects were seen in animal testing, but only at doses that were toxic to the mother. STOT, RE: Based on animal data, prolonged or repeated overexposure by ingestion may affect the kidneys and thymus gland. Neurological and neurobehavioral effects have been observed.</p>
Additive 3, CAS #: Trade secret	<p><u>Acute Toxicity</u> Oral LD50 (Rat): >5,000 mg/kg (OECD Guideline 401); Symptoms: drowsiness, gastrointestinal disturbance, liver and kidney disorders, muscle weakness. Dermal LD50 (Rat): >2,000 mg/kg (OECD Guideline 402) Inhalation LC50 (Rat), 4hrs: >5 mg/L (OECD Guideline 403). No mortality was observed. Skin corrosion/irritation (Rabbit): not irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): not irritating (OECD Test Guideline 405) STOT, SE: no specific target organ toxicity to be expected after a single exposure. <u>Chronic toxicity</u> Respiratory or skin sensitization (Guinea pig): skin sensitizer (OECD Guideline 406) Mutagenicity: Not mutagenic in bacteria, mammalian cell culture and mammals. Reproductive toxicity: The results of animal studies gave no indication of a fertility impairing effect. Animal studies gave no indication of a developmental toxic effect at doses that were not toxic to the parental animals. Teratogenicity: In animal studies the substance did not cause malformations. STOT, RE: May cause damage to the liver after repeated ingestion. Effect found in rodents only. The relevance to humans is questionable. Due to the species specific mode of action, the effects are not expected to occur in humans.</p>
Additive 4, CAS #: Trade secret	<p><u>Acute Toxicity</u> Oral LD50 (Rat): 2,000-5,000 mg/kg (OECD Guideline 401) Skin corrosion/irritation (Rabbit): not irritating (OECD Test Guideline 404) Serious eye damage/eye irritation (Rabbit): not irritating (OECD Test Guideline 405) STOT, SE: no specific target organ toxicity to be expected after a single exposure <u>Chronic toxicity</u> Respiratory or skin sensitization (Guinea pig): skin sensitizer (OECD Guideline 406)</p>

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Acutely and chronically hazardous for aquatic organisms. Do not release into natural waters.

Persistence and degradability: Not readily biodegradable by OECD criteria. In contact with water the substance will hydrolyze slowly.

Bioaccumulative potential: No significant accumulation in organisms is expected.

Mobility in soil: Not expected.

Other adverse effects: Not known.

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

Components	Test Results
Amines, CAS #: Trade Secret	<p><u>Amine 1, CAS #: Trade Secret</u> <u>Aquatic toxicity:</u> Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. <u>Acute Toxicity</u> Fish: LC50 (Fathead minnow), 96hrs: >100 mg/L (OECD Guideline 203) Aquatic Invertebrates: EC50 (Daphnia magna), 48hrs: 1-10 mg/L (OECD Guideline 202) Algae:ErC50 (Green algae), 72hrs: >100 mg/L (OECD Guideline 201) <u>Ecological Data</u> Microorganisms, EC50 (bacterium), 24hrs: >150 mg/L (DIN 38412 Part 8) Biodegradation, 28days: <1 % (OECD Guideline 301D); COD: 2,000-2,500 mg/g <u>Amine 2, CAS #: Trade Secret</u> <u>Acute Toxicity</u> Fish: LC50 (Golden orfe), 96hrs: >100 mg/L (OECD Guideline 203) Aquatic Invertebrates: EC50 (Daphnia magna), 48hrs: 10-100 mg/L (OECD Guideline 202) Algae:ErC50 (Green algae), 72hrs: 10-100 mg/L (OECD Guideline 201) / ErC50: 10-100 mg/L, / EC10: 10-100 mg/L Microorganisms, EC10 (bacterium), 18hrs: >1,000 mg/L <u>Ecological Data</u> Biodegradation, Aerobic, 28days: 8% not readily degradable / 31days: 42% moderately degradable Bioaccumulation: Not expected</p>
Glycols, CAS #: Trade Secret	<p><u>Glycol 1, CAS #: Trade Secret</u> <u>Acute Toxicity</u> Fish: LC50 (Common Carp), 96hrs: >1,000 mg/L (OECD Guideline 203) Aquatic Invertebrates: EC50 (Daphnia magna), 48hrs: >750 mg/L (OECD Guideline 202) Algae:ErC50 (Green algae), 72hrs: > 1,000 mg/L (OECD Guideline 201) Microorganisms, EC50 (bacterium), 24hrs: 10,000 mg/L <u>Ecological Data</u> Biodegradation, Aerobic, 14days: 96% Readily biodegradable. <u>Glycol 2, CAS #: Trade Secret</u> <u>Acute Toxicity</u> Fish: LC50 (Fathead minnow), 96hrs: >100 mg/L (OECD Guideline 203) Aquatic Invertebrates: EC50 (Daphnia magna), 48hrs: >100 mg/L (OECD Guideline 202) Algae:ErC50 (Green algae), 72hrs: > 95 mg/L (OECD Guideline 201) <u>Ecological Data</u> Biodegradation, 28days: 7%; not readily degradable Bioaccumulation: Does not bioaccumulate. COD: approximately 2,500 mg/g <u>Glycol 3, CAS #: Trade Secret</u> Theoretical Biological Oxygen Demand (ThBOD): approximately 2,500 mg/g</p>
Zeolites, CAS #: 1318-02-1	<p><u>Acute Toxicity:</u> Fish (fathead minnow), 96hrs: LC50: >680 mg/L (EPA 72-1, static). The details of the toxic effect relate to the nominal concentration. The LC50 is higher than the solubility limit.</p>

	<p>Aquatic invertebrates (Daphnia magna), 24hrs: EC50: 2,808 mg/L (OECD Test Guideline 202, part 1, static) Aquatic plants (Green algae), 96hrs: EC50: >328 mg/L (OECD Test Guideline 201, static). The details of the toxic effect relate to the nominal concentration. Tested above maximum solubility. The product has low solubility in the test medium. An eluate has been tested. Microorganisms (Bacteria), 16hrs: EC50: 950 mg/L (Growth inhibition) (DIN 38412, Part 8). The product has not been tested. The statement has been derived from substances/products of a similar structure or composition. The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An eluate has been tested.</p> <p><u>Chronic toxicity:</u> Fish (fathead minnow), 30days: NOEC: ≥86.7 mg/L (OPP 72-5, EPA-Guideline, Flow through). The statement of the toxic effect relates to the analytically determined concentration. Aquatic invertebrates (Daphnia magna), 21days: NOEC: 32 mg/L (OECD Test Guideline 211, semistatic). The details of the toxic effect relate to the nominal concentration. The product has low solubility in the test medium. An eluate has been tested.</p> <p><u>Ecological Data:</u> Biodegradability: Not readily biodegradable. The product is virtually insoluble in water and can thus be separated from water mechanically in suitable effluent treatment plants. It cannot be eliminated from water by biological purification processes. Mobility in soil: Transport between environmental compartments: Study scientifically not justified.</p>
Additive 1, CAS #: Trade secret	<p>Not regarded as dangerous for the environment. Acute fish toxicity: Not considered toxic to fish. Persistence and degradability: Not readily biodegradable. Bioaccumulative potential: Not bioaccumulating Mobility in soil: Not relevant, due to the form of the product. Results of PBT and vPvB assessment: This product does not contain any PBT or vPvB substances.</p>
Additive 2, CAS #: Trade secret	<p>Highly toxic to aquatic organisms. <u>Acute Toxicity:</u> Fish, 96hrs: LC50: 10 - 100 mg/L (OECD Guideline 203) Aquatic Invertebrates (Daphnia magna), 48hrs: EC50: 10 - 100 mg/L (OECD Guideline 202, Acute Immobilisation Test) Aquatic Plants (green algae), 72hrs: EC50: 10 - 100 mg/L (OECD Guideline 201, Growth Inhibition Test)</p> <p><u>Ecological Data:</u> Persistence and degradability: Unlikely to persist in the environment. While not considered readily biodegradable, it is susceptible to biodegradation and hydrolysis in water. Bioaccumulative potential: The substance is unlikely to accumulate in the food chain (bioaccumulation potential is low), and is considered highly toxic to aquatic organisms. Mobility in soil: Insoluble in water and highly adsorptive to particulates, soils, and sediments. Consequently, it will be removed via adsorption in wastewater treatment facilities. Results of PBT and vPvB assessment: No data available. Other adverse effects: No further relevant information available.</p>
Additive 3, CAS #: Trade secret	<p><u>Aquatic toxicity:</u> Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.</p> <p><u>Acute Toxicity</u> Fish: LC50 (Rainbow trout), 96hrs: 1-10 mg/L (OECD 203, static) Aquatic invertebrates: EC50 (Daphnia magna), 24hrs: 1-10 mg/L Aquatic Plants: EC50 (algae), 72hrs: >100 mg/L (growth rate), (OECD Guideline 201, static) EC10 (algae), 72hrs: 10 mg/L (growth rate) (OECD Guideline 201, static)</p> <p><u>Chronic toxicity</u> No observed effect concentration at: Aquatic invertebrates (Daphnia magna), 21 days: ≤1mg/L (OECD Guideline 202, part 2, semistatic) Soil living organisms LC0, (redworm) 14 days: >1,000 mg/kg, (OECD Guideline 207, artificial soil) LC0, (redworm) 56 days: >100 mg/kg, (OECD Guideline 222, artificial soil)</p> <p><u>Ecological Data</u> Activated sludge, EC0, 3hrs: 1,000 mg/L (OECD Guideline 209, static) Bioaccumulative potential (golden orfe): Does not significantly accumulate in organisms. Mobility in soil: expected adsorption to solid soil phase.</p>
Additive 4, CAS #: Trade secret	<p><u>Aquatic toxicity:</u> Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations.</p> <p><u>Acute Toxicity</u> Fish: LC50 (Rainbow trout), 96hrs: 1-10 mg/L (OECD 203, static) LC50 (Zebrafish), 96hrs: ≤1 mg/L (OECD 203, semistatic) LC50 (Bluegill), 96hrs: ≤1 mg/L (OECD 203, static) Aquatic invertebrates: EC50 (Daphnia magna), 24hrs: 10-100 mg/L Aquatic Plants: EC50 (algae), 72hrs: 1-10 mg/L (growth rate), (OECD Guideline 201, static)</p> <p><u>Chronic toxicity</u> No observed effect concentration at: Aquatic invertebrates (Daphnia magna), 21 days: 1.0 mg/L (OECD Guideline 211, semistatic)</p> <p><u>Ecological Data</u> Activated sludge, EC0, 3hrs: >100 mg/L (OECD Guideline 209, static) Bioaccumulative potential: Not expected Mobility in soil: expected adsorption to solid soil phase. Not readily biodegradable. Elimination info: 38% DOC reduction, 28days</p>

SECTION 13 – DISPOSAL CONSIDERATIONS

Product Disposal: The generation of waste should be avoided or minimized wherever possible. If product becomes a waste, it does not meet criteria of hazardous waste as defined in 40 CFR 261, Subpart C and D. Do not discharge into sewer system. Spill cleanup residues may still be subject to RCRA storage and disposal requirements. Dispose waste 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 regulation. 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. (contains Diethyltoluenediamine)	Environmentally hazardous substance, liquid, n.o.s. (contains Diethyltoluenediamine)
Transport hazard class(es):		9	9
Packing group:		III	III
Hazard Label		Miscellaneous	Miscellaneous
Special precautions:		Marine pollutant	
Environmental Hazard:	Yes, Marine pollutant		

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 are subject to the reporting.

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

No components are subject to the reporting.

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 component(s) are listed:

Substance		Regulatory Limits			Recommended Limits	
		OSHA PEL		Cal/OSHA PEL	NIOSH REL	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
Hydrated Aluminum Silicate (Kaolin), CAS #: 1332-58-7	Total dust	-	15	-	10	-
	Respirable fraction	-	5	2 *	5	2 *
Tin, organic compounds (as Sn), CAS #: 7440-31-5		-	0.1	0.1; (ST) 0.2	0.1	0.1; (ST) 0.2
Particulates Not Otherwise Regulated (PNOR)	Total dust	-	15	10	See Appendix D	See TLV book Appendix B
	Respirable fraction	-	5	5		

ppm-parts per million; (ST)=STEL; * - no asbestos and <1% Crystalline Silica

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): No components are listed.

NFPA rating: Health: 3 Fire: 1 Reactivity: 1 Special: 0

HMIS rating: Health: 3* Flammability: 1 Physical hazard: 1

State Regulations:

California Prop. 65 Components:

This product does not contain any 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.

WHMIS Classification (Controlled Products Regulations): Class D2B: Material causing other toxic effects

WHMIS Label Information: 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
COD / BOD	Chemical Oxygen Demand / Biological Oxygen Demand
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
EHS	Extremely Hazardous Substances
DSL	Domestic Substance List
WHMIS	Workplace Hazardous Materials Information System

Latest revision date: July 22, 2016

Date of the previous revision: January 19, 2016

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.