Rhino Linings®
SAFETY DATA SHEET

Part No.: 60264

Released: June 19, 2017

PRODUCT NAME(S): Rhino TuffGrip™ 11-90N Resin Black

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: **Rhino TuffGrip™ HP 11-90 Resin Black**

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 09

Classification of the substance or mixture:

Hazard Class	Category	Hazard Statement Codes	Hazard Statements
Acute Toxicity, Oral	5	H303	May be harmful if swallowed
Acute Toxicity, Dermal	5	H31	May be 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
Carcinogenicity	2	H351	Suspected of causing cancer by inhalation
Specific target organ toxicity, repeated exposure	2	H373	May cause damage to kidney, liver and pancreas through prolonged or repeated exposure May cause damage to 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.
	P264	Wash exposed area with plenty of water and soap thoroughly after handling.
	P273	Avoid release to the environment.
Response:	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.
	P308 + P313	IF exposed or concerned: Get medical advice/attention.
	P314	Get medical advice/attention if you feel unwell.
	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: Not known.

Note: Negative effects of the component classified as possible carcinogen to humans are minimized since it is dispersed in a liquid as opposed to an inhalable fine powder form. However, precautions should be taken to avoid breathing mists created by heating, mixing or spraying and dust from cutting or grinding of cured product containing this component.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration, %
Polyester Polyol	Trade Secret	Trade Secret	50 – 75
Diethylmethylbenzenediamine	68479-98-1	270-877-4	5 – 15
Bismuth Neodecanoate	34364-26-6	215-964-6	.1-.5
Triethylenediamine	280-57-9	205-999-9	<0.1
Tetrahydroxypropylethyendiamine	102-60-3	203-041-4	2 - 5
Zeolites	1318-02-1	930-915-9	1-3
Polyether Triol	9082-00-2	N.L.	10-20
2-Methyl-1,3-Propanediol	2163-42-0	606-809-0	1-5
Carbon Black	1333-86-4	215-609-9	0.5 – 2

SECTION 4 – FIRST-AID MEASURES

Description of First Aid measures:

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

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

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

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 24hours.
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.

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: 60 - 90°F (16 – 32°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. Not available for components.

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 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:	Black Liquid
Odor:	Faint
Odor threshold:	Not available
pH:	8 – 10
Melting point/ freezing point:	Not available
Initial boiling point and boiling range:	>200°C
Flash point:	>200°C
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):	Very slightly soluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	>250°C
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: 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 pain or 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.

- DETDA, CAS #: 68479-98-1: 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:

May damage skin if not removed promptly. 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 and burning.

Specific target organ toxicity, single exposure:

Not classified. This product contains a component that may cause drowsiness or dizziness; however, its amount is not sufficient for classification.

- Confidential Component 2, CAS #: Trade secret: May cause respiratory irritation.

Aspiration hazard: Not an aspiration hazard.

Chronic toxicity:

Respiratory and Skin Sensitizer:

This product does not contain components that are reported to be a skin or respiratory sensitizer.

Germ cell mutagenicity:

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

Carcinogenicity:

This product contains component reported to be possibly carcinogenic to humans by IARC.

- Carbon Black, CAS #: 1333-86-4: IARC: Group 2B (Possibly Carcinogenic to Humans)

  Negative effects of Carbon Black on health are minimized, considering that it is dispersed in liquid. However, precautions should be taken to avoid breathing mists created by heating, mixing or spraying and dust from cutting or grinding of cured product containing this component.

Reproductive toxicity:

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

Specific target organ toxicity, repeated exposure:

Liver, kidney, pancreas, lungs/respiratory system.

Medical conditions aggravated by overexposure:

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

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

Components	Test Results
Diethyltoluenediamine (DETDA), CAS #: 68479-98-1	Acute Toxicity Oral LD50 (Rat): 723 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, can cause serious damage (US-EPA) 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.
Bismuth Neodecanoate, CAS #: 34364-26-6	Acute Toxicity Target organs: Causes (target organ or system) damage. (e.g. lung, nervous system, blood disorders, liver kidney, immune system, cardiovascular system, thyroid, testicular ovarian, etc. Chronic toxicity Chronic respiratory disorders, skin disorders, liver kidney.
Triethylenediamine, CAS #: 280-57-9	Acute Toxicity Oral LD50 (Rat): 23,200 mg/kg Dermal LD50 (Rabbit):> 2,000 mg/kg Skin corrosion/irritation (Rabbit): Mild skin irritation. Serious eye damage/eye irritation (Rabbit): Moderate eye irritation.
Tetrahydroxypropylethylendiamine, CAS #: 102-60-3	Acute Toxicity Oral LD50 (Rat): 3,280mg/kg Dermal LD50 (Rabbit): >2,000 mg/kg; No mortality was observed. Inhalation LC50 (Rat), aerosol, 4hrs: >5.0 mg/L; No mortality was observed; Not acute hazard. (OECD Guideline 403) Skin corrosion/irritation (Rabbit): Not irritating (Draize test) Serious eye damage/eye irritation (Rabbit): slightly irritating (Draize test) Chronic Toxicity Sensitization (Guinea pig): Not sensitizing (Guinea pig maximization test) Genetic toxicity: no indication of a fertility impairing affect. Carcinogenicity*: Study not justified Reproductive toxicity: Not observed
Zeolites, CAS #: 1318-02-1	Acute Toxicity 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 Chronic toxicity 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.
Polyether Triol, CAS #: 9082-00-2	Acute Toxicity No known acute effects.

2-Methyl-1,3-Propanediol, CAS #: 2163-42-0	Acute Toxicity Oral LD50 (Rat): >5,000 mg/kg Dermal LD50 (Rabbit): >2,000 mg/kg Inhalation LC50 (Rat), 1hr: No data available. Skin corrosion/irritation (Rabbit): may cause slight irritation, but not expected to cause serious damage. Serious eye damage/eye irritation (Rabbit): Not classified. STOT, SE: Not classified. Aspiration hazard: Not classified. Chronic toxicity None expected under normal conditions of use.
Carbon Black, CAS #: 1333-86-4	Acute Toxicity Oral LD50 (Rat): >8,000 mg/kg; Carbon Black is inert, insoluble and is not expected to present an ingestion hazard Skin corrosion/irritation (Rabbit): non- irritating, index score 0.6/8 (4 = severe edema) Eye irritation (Rabbit): non-irritating, Draize score 10-17/110 (100 maximally irritating) Chronic toxicity: Germ cell mutagenicity: In Vitro: not suitable to be tested in bacterial (Ames test) and other in-vitro systems because of its insolubility. When tested, however, results for carbon black showed no mutagenic effects. Organic solvent extracts of carbon black can, however, contain traces of polycyclic aromatic hydrocarbons (PAHs). A study to examine the bioavailability of these PAHs showed that PAHs are very tightly bound to carbon black and not bioavailable. / In Vivo - In an experimental investigation, mutational changes in the hprt gene were reported in alveolar epithelial cells in the rat following inhalation exposure to carbon black. This observation is believed to be rat specific and a consequence of "lung overload" which led to chronic inflammation and release of oxygen species. This is thus considered to be a secondary genotoxic effect and thus carbon black itself would not be considered to be mutagenic. Carcinogenicity: IARC: Group 2B: Tumor development in rats caused by lung overload. No epidemiological evidence for lung tumors in humans. Lung tumors in rats are the result of exposure under "lung overload" conditions. The development of lung tumors in rats is specific to this species. Mouse and hamster do not develop lung tumors under similar test conditions. The European CLP guidance on classification and labelling states, that „lung overload" in animals is listed under mechanism not relevant to humans and that no classification is necessary if the mechanism is not relevant to humans. ACGIH: Group A4 - Not classifiable as a human carcinogen. NIOSH: 1978 criteria document on carbon black recommends that only carbon blacks with PAH contaminant levels greater than 0.1% require the measurement of PAHs in air. As some PAHs are possible human carcinogens, NIOSH recommends an exposure limit of 0.1 mg/m³ for PAHs in air, measured as the cyclohexane-extractable fraction. Not listed as a human carcinogen by NTP and OSHA. Inhalation (Rat/Mouse), 2 years, Target organ: lungs; Effect: inflammation, fibrosis, tumors; Oral (Rat), 2 years: no tumors; Oral (Mouse), 2 years: no tumors; Dermal (Mouse), 1.5 years: no skin tumors; Inhalation (Mouse/hamster), 1-2 years Target organ: lungs: no tumors; Inhalation (Rat), 2 years Target organ: lungs: inflammation, fibrosis, tumors. Reproductive toxicity: No experimental studies are available. However, based on toxicokinetic data, carbon black is deposited in the lungs and based on its specific physicochemical properties (insolubility, low absorption potential), it is not likely to distribute in the body to reach reproductive organs, embryo and/or fetus under in vivo conditions. Therefore, no adverse effects to fertility/reproduction or to fetal development are expected. STOT, RE: Inhalation (Rat), 90 days, Target organ: lungs, NOAEL = 1.1 mg/m³ (respirable)-Effect: inflammation, hyperplasia, fibrosis; Prolonged or repeated inhalation of dust may cause pulmonary fibrosis or emphysema. Inhalation studies with the rat showed lung effects. These effects are believed to be the effects of "lung overload" and specific to the species.

SECTION 12 – ECOLOGICAL INFORMATION

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

Persistence and degradability: Not known.

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
Diethyltoluenediamine (DETDA), CAS #: 68479-98-1	Aquatic toxicity: Very toxic to aquatic organisms; may cause long-term adverse effects in the aquatic environment. Acute Toxicity Fish: LC50 (Fathead minnow), 96hrs: >106 mg/L (OECD Guideline 203) Aquatic Invertebrates: EC50 (Daphnia magna), 48hrs: 5.8 mg/L (OECD Guideline 202) Algae:ErC50 (Green algae), 72hrs: 104 mg/L (OECD Guideline 201) Ecological Data Microorganisms, EC50 (bacterium), 24hrs: >170 mg/L (DIN 38412 Part 8) Biodegradation, 28days: <1 % (OECD Guideline 301D); COD: 2,370 mg/g
Bismuth Neodecanoate, CAS #: 34364-26-6	Acute Toxicity Fish: LC50 (fathead minnow), 96hrs: 1,000 mg/L Aquatic invertebrates: EC50 (Daphnia magna), 24hrs: >1,000 mg/L Aquatic plants: EC50 (green algae), 96hrs: 500-1,000 mg/L Ecological Data Toxicity to microorganisms: DEV-L2: >1,000mg/L Activated sludge, aerobic, domestic EC20, 30min: 1,000 mg/L (OECD Guideline 209) Biodegradability: poorly biodegradable Elimination information *(aerobic, predominantly domestic sewage)*: *9 % BOD of the ThOD (28 d) (OECD* Guideline *301F)* Stability in water: in contact with water the substance will hydrolyze slowly. Bioaccumulative potential: not expected based on octanol/water distribution coefficient (log Pow). Mobility in soil: No data available.
Triethylenediamine, CAS #: 280-57-9	Acute toxicity Fish: LC50, 96hr (Cyprinus carpio)s: >100 mg/L Aquatic invertebrates:) EC50, 48hrs: >92mg/L (Daphnia magna) Aquatic plants:

	EC50, 72hrs: 180 mg/L Pseudokirchneriella subcapitata) Chronic toxicity No data available.. Ecological Data Dispose of container and unused contents in accordance with federal, state, and local requirements.
Tetrahydroxypropylethylendiamine, CAS #: 102-60-3	Aquatic toxicity: high probability that the product is not acutely harmful to aquatic organisms. The inhibition of the degradation activity of activated sludge is not anticipated when introduced to biological treatment plants in appropriate low concentrations. Acute Toxicity Fish: LC50 (Leuciscus idus), 96hrs: >2,000 mg/L Aquatic invertebrates: EC50 (Daphnia magna), 48hrs: >100 mg/L Aquatic Plants:EC50 (algae), 72hrs: >150.67 mg/L (growth rate) Chronic toxicity Fish: Study scientifically not justified. Aquatic invertebrates (Daphnia magna), 21 days: >= 10 mg/L Ecological Data Activated sludge, industrial, EC20, 30min: 500-1,000 mg/L (OECD Guideline 209, static) Microorganisms, EC50, 40hrs: >15,000 mg/L Bioaccumulative potential: Does not significantly accumulate in organisms. Mobility in soil: Not expected. Stability in water: hydrolyzes slowly. Biodegradation: poorly biodegradable
Zeolites, CAS #: 1318-02-1	Acute Toxicity: 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. 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. Chronic toxicity: 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. Ecological Data: 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.
Polyether Triol, CAS #: 9082-00-2	Acute Toxicity: There is a high probability that the product is not acutely harmful to aquatic organisms. The product has not been tested. Ecological Data Biodegradability poorly biodegradable Bioaccumulative potential: this product has not been tested Mobility in soil: No data available, but not expected
2-Methyl-1,3-Propanediol, CAS #: 2163-42-0	Aquatic toxicity: No additional information available. Acute Toxicity: No additional information available. Ecological Data: Biodegradation: Not established. Bioaccumulative potential: Not established. Mobility in soil: Not available.
Carbon Black, CAS #: 1333-86-4	Acute toxicity Fish: LC50 (Zebra fish), 96hrs (OECD Test Guideline 203): >1,000 mg/L Aquatic invertebrates: EC50 (Daphnia magna), 24hrs (OECD Test Guideline 202): >5,600 mg/L Aquatic plants: EC50 (Algae), 72hrs (OECD Test Guideline 201): >10,000mg/L; NOEC 50: >10,000 mg/L Ecological Data Activated sludge, EC0, 3hrs (TTC test, DEV L3): 800 mg/L Persistence and degradability: Effects are not expected due to its stability and insolubility in water or organic solvents. Carbon black is inert elemental carbon and cannot be further biodegraded by microorganisms, hydrolysis, photo-degradation in air or in surface water. Bioaccumulative potential: No significant accumulation in organisms is expected. Not expected to occur in air or water in relevant amounts due to stability, insolubility and low vapor pressure. The deposition in soil or sediments is the most possible fate in the environment.

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: Non-regulated
Sea transport, IMDG: Non-regulated

Air transport, IATA/ICAO: Non-regulated

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 is 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
Carbon Black, CAS #: 1333-86-4	-	3.5	3.5 mg/m^3	3.5 mg/m^3 (without PAHs); when PAHs are present, NIOSH considers carbon black to be a potential occupational carcinogen.	3 mg/m^3 (IHL)

ppm-parts per million;

NIOSH IDLH: Carbon Black, CAS #: 1333-86-4 in the presence of PAHs: 1,750 mg/m^3 / TWA: 0.1 mg PAH s/m^3

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: 2 Fire: 1 Reactivity: 0 Special: 0
HMIS rating: Health: 2* Flammability: 1 Physical hazard: 0

State Regulations:

California Prop. 65 Components:

This product contains chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

- Carbon Black (airborne, unbound particles of respirable size), CAS #: 1333-86-4; Date listed: February 21, 2003 – causes cancer

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:

CARBON BLACK: May cause discomfort to the respiratory tract, skin and eyes. The International Agency for Research on Cancer has classified carbon black as possibly carcinogenic to humans based on laboratory animal inhalation studies.
Avoid breathing dust and prolonged contact with skin and eyes. Use only with adequate ventilation. Wear suitable protective clothing, gloves, and eye protection. In case of contact: Wash skin thoroughly with soap and water. Flush eyes with plenty of water. See Material Safety Data Sheet for important additional information.

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: June 19, 2017 – New
Date of the previous revision: New product

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.