

PRODUCT NAME(S): Resurfacer Gray

SECTION 1 – IDENTIFICATION

Manufacturer's Info: **Product name:** Resurfacer Gray
Rhino Linings Corporation
 9747 Businesspark Avenue
 San Diego, CA, 92131

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	H302	Harmful if swallowed
Acute Toxicity, Dermal	5	H313	May be harmful in contact with skin
Skin corrosion / irritation	1	H314	Causes severe skin burns and eye damage
Serious eye damage / Eye irritation	1	H318	Causes serious eye damage
Carcinogenicity	1A	H350	May cause cancer by inhalation
Specific target organ toxicity, single exposure	3	H335	May cause respiratory irritation
Specific target organ toxicity, repeated exposure	1	H372	Causes damage to lungs and respiratory system, through prolonged or repeated exposure by inhalation. Causes damage to kidney and liver through prolonged or repeated exposure.

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.
 P271 Use only outdoors or in a well-ventilated area.
 P260 Do not breathe dusts or mists.
 P270 Do not eat, drink, and smoke when using this product.
 P280 Wear protective gloves/ protective clothing / eye protection/ face protection.
 P264 Wash exposed area with plenty of water and soap thoroughly after handling.

Response: P301 + P330 + P312 IF SWALLOWED: Rinse mouth. Call a POISON CENTER or physician if you feel unwell.
 P331 Do not induce vomiting.
 P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P363 Wash contaminated clothing before reuse.
 P304 + P340 + P310 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.
 P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P310 Immediately call a POISON CENTER or doctor/ physician.
 P308 + P313 IF exposed or concerned: Get medical advice/attention.

Storage: P403 + P235 Store in a well-ventilated place. Keep cool.
 P405 Store locked up.

Released: August 17, 2015
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:

Smoking in combination with silica exposures increases the risk of cancer.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Components	CAS #	EC #	Concentration, %
Amorphous Silica	7631-86-9	231-545-4	30 – 60
Portland cement	65997-15-1	Not available	30 – 60
Crystalline Silica (Quartz)	14808-60-7	238-878-4	5 – 15
Calcium Sulfate Dihydrate (Gypsum)	13397-24-5	603-783-2	1 – 5
Calcium Carbonate (Limestone)	1317-65-3	215-279-6	1 – 5
Polyvinyl Alcohol	25213-24-5	607-648-9	1 – 5
Hydrated Aluminum Silicate (Kaolin)	1332-58-7	310-194-1	1 – 5
Crystalline Silica (Quartz), Respirable	14808-60-7	238-878-4	0.05 – 1.0
Titanium Dioxide	13463-67-7	236-675-5	0.01 – 0.1

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

Inhalation: Remove the exposed person to fresh air and keep at rest in a position comfortable for breathing. Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of the product requires immediate medical attention. 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: Heavy exposure to the product requires prompt attention. Quickly and gently brush away excess product. Wash material off of the skin thoroughly with lukewarm, gently flowing water and non-abrasive pH natural soap for at least 15 minutes. Remove contaminated clothing and shoes and wash them before reuse. Seek medical attention for rashes, irritation, dermatitis and prolonged unprotected exposure to wet product. The symptoms may be delayed and should be treated promptly by a physician or dermatologist. In the event of any complaints or symptoms, avoid further exposure.

Eye: Immediately flush eyes cautiously with plenty of 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. Injuries must be treated promptly by a physician or ophthalmologist.

Ingestion: Remove the exposed person to fresh air and keep at rest in a position comfortable for breathing. Remove dentures if any. If conscious, rinse mouth thoroughly with water and then give 60 to 240 mL (2 to 8 oz) of water to drink. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. Never induce vomiting or give anything by mouth if the victim is unconscious or having convulsions.

Most important symptoms/effects, acute and delayed: See Section 11 for more details.

General advice for First Aid responders:

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: When mixed with water, the product has an increased pH. Treatment should be supportive and based on the judgment of the physician in response to the reaction of the patient. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled. Recommended medical monitoring for at least 24 hours.

SECTION 5 – FIRE-FIGHTING MEASURES

Suitable extinguishing media: Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media: Do not use water jet and halogenated compounds.

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Specific hazards arising from the chemical: This product is non-flammable and non-combustible. Containers at risk from fire should be cooled with water spray and, if possible, removed from the danger area. Hazardous combustion products: carbon dioxide, carbon monoxide, silica oxides, sulfur oxides, metal oxides.

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.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Ensure adequate ventilation/exhaust extraction. Avoid breathing dust during clean up. Use protective equipment as described in Section 8.

Environmental precautions: Prevent from entering into soil, ditches, sewers, waterways and/or groundwater, basements or confined areas. Inform the relevant authorities if the product has caused environmental pollution. See Section 12 for more details.

Methods and materials for containment and cleaning up: Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with HEPA filter and place in a designated labeled waste container. Seal the container, and properly dispose of the waste material in accordance with existing federal, state and local regulations.

For major spills: Approach release from upwind. Prevent wind dispersal. Large spills to waterways may be hazardous due to alkalinity of the certain components of the product.

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: Avoid generating and do not breathe dust. Do not rely on your sight to determine if dust is in the air. Respirable crystalline silica dust may be in the air without a visible dust cloud.

Use adequate ventilation and/or dust collection methods to keep airborne levels below the exposure limits. Maintain and test ventilation and dust collection equipment. Use all available work practices to control dust exposures, such as water sprays. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Avoid breakage of bagged material or spills of bulk material.

Wear appropriate respiratory, eye and skin protection. Avoid contact with skin and eyes. Wash hands thoroughly after handling. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. 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. Wash or vacuum clothing when becomes dusty.

Persons with a history of skin sensitization problems should not be employed in any process in which this product is used. Avoid exposure by obtaining and following special instructions before use. Do not handle until all safety precautions have been read and understood.

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 for details) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed. Store bags to avoid accidental tearing, breaking, or bursting. Avoid windblown dust by shielding or covering outdoor stockpiles. Protect chemical from atmospheric moisture.

Storage stability: Stable under normal conditions.

Storage temperature: 60 - 100°F (16 – 38°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.

Participate in training, exposure monitoring, and health surveillance programs to monitor any potential adverse health effects that may be caused by breathing respirable crystalline silica.

The OSHA Hazard Communication Standard, 29 CFR Sections 1910.1200, 1915.1200, 1917.28, 1918.90, 1926.59 and 1928.21, and state and local worker or community "right-to-know" laws and regulations should be strictly followed.

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 and impurities are listed in Section 15 of this SDS.

Appropriate engineering controls: Good local and general ventilation and wet methods 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 product, eye protection is required. Examples of eye protection include safety glasses with side shields or chemical goggles. Contact lenses should not be worn when working with this product. Dust can get under the lenses and cause abrasion of the cornea.

Skin/body protection:

Impervious, waterproof, abrasion and alkali-resistant gloves should be worn always when working with this product. Do not rely on barrier creams in place of impervious gloves. Do not get product inside gloves.

Body should be covered with long-sleeved and long-legged clothing to protect the skin from direct contact with the product. Protective clothing should be selected and used in accordance with "Guidelines for the Selection of Chemical Protective Clothing" published by ACGIH based on the task being performed and the risks involved.

To reduce foot and ankle exposure, wear protective footwear that is high enough to prevent the product from getting inside. Remove clothing and protective equipment that becomes saturated with the product and immediately wash exposed areas of the body. Wash contaminated clothing before reuse. Store work clothing separately.

Respiratory protection:

Use local or general ventilation to control exposures below applicable exposure limits.

Use properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product, and assigned protection factor of the selected respirator.

The table below can assist in selecting respirators that will reduce personal exposures to below the OSHA PEL. It is part of the NIOSH Respirator Selection Logic, 2004, Chapter III, Table 1, "Particulate Respirators". The full document can be found at www.cdc.gov/niosh/nppt/topics/respirators; the user of this SDS is directed to that site for information concerning respirator selection and use.

The assigned protection factor (APF) is the minimum anticipated level of protection provided by each type of respirator worn in accordance with an adequate respiratory protection program. For example, an APF of 10 means that the respirator should reduce the airborne concentration of a particulate by a factor of 10, so that if the workplace concentration of a particulate was 150 ug/m³, then a respirator with an APF of 10 should reduce the concentration of particulate to 15 ug/m³.

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.

APF 1	Type of Respirator (Use only NIOSH-certified respirators)
10	Any air-purifying elastomeric half-mask respirator equipped with appropriate type of particulate filter. ² Appropriate filtering facepiece respirator. ^{2,3} Any air-purifying full facepiece respirator equipped with appropriate type of particulate filter. ² Any negative pressure (demand) supplied-air respirator equipped with a half-mask.
25	Any powered air-purifying respirator equipped with a hood or helmet and a high efficiency (HEPA) filter. Any continuous flow supplied-air respirator equipped with a hood or helmet.
50	Any air-purifying full facepiece respirator equipped with N-100, R-100, or P-100 filter(s). Any powered air-purifying respirator equipped with a tight-fitting facepiece (half or full facepiece) and a high-efficiency filter. Any negative pressure (demand) supplied-air respirator equipped with a full facepiece. Any continuous flow supplied-air respirator equipped with a tight-fitting facepiece (half or full facepiece). Any negative pressure (demand) self-contained respirator equipped with a full facepiece.
1,000	Any pressure-demand supplied-air respirator equipped with a half-mask.

¹ The protection offered by a given respirator is contingent upon (1) the respirator user adhering to complete program requirements (such as the ones required by OSHA in 29CFR1910.134), (2) the use of NIOSH-certified respirators in their approved configuration, and (3) individual fit testing to rule out those respirators that cannot achieve a good fit on individual workers.

² Appropriate means that the filter medium will provide protection against the particulate in question.

³ An APF of 10 can only be achieved if the respirator is qualitatively or quantitatively fit tested on individual workers.

Additional Protective Measures: Educate and train employees in safe handling of this product. Follow all label instructions. As a general hygiene practice, wash hands and face after use. Clean water should always be readily available for emergency skin and eye washing. Use administrative controls such job rotation to supplement engineering controls.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid, powder
Odor:	Odorless
Odor threshold:	Not applicable
pH:	Not available for mixture; Silica: 6-8; Portland cement: >11.5;
Melting point/ freezing point:	Not available for mixture; Silica: 3,050°F (1,677°C);
Initial boiling point and boiling range:	Not available for mixture; Silica: 4,046°F (2,230°C); Portland cement: >1,832°F (1,000°C);
Flash point:	Not applicable. Not flammable. Not combustible.
Evaporation rate:	Not applicable
Flammability (solid, gas):	Not applicable
Upper/ lower flammability or explosive limits:	Not applicable

Vapor pressure:	Not applicable
Vapor density:	Not applicable
Relative density:	Not available for mixture; Silica: 2.60-2.65; Portland cement: 2.3-3.1;
Solubility (water):	Insoluble
Partition coefficient n-octanol/water:	Not available
Auto-ignition temperature:	Not available
Decomposition temperature:	Not available
Viscosity:	Not applicable

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: Hazardous Polymerization: Product will not undergo hazardous polymerization.
 Corrosion to metals: Corrosive effects to metal are anticipated.
 Oxidizing properties: Based on its structural properties the product is not classified as oxidizing.

Chemical stability: Stable under recommended storage conditions. Product is hygroscopic; contamination with moisture will negatively affect product performance. Avoid unintended contact with water; the reaction will generate heat.

Conditions to avoid: Unintentional contact with moisture, high humidity, generation of dust.

Incompatible materials: Strong oxidizing agents; alcohols, amines, bases, acids, metal alloys.

- Silica reacts violently with powerful oxidizing agents such as hydrofluoric acid, fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, oxygen difluoride, hydrogen peroxide, acetylene, ammonia yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas silicon tetrafluoride.
- Portland Cement is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Released toxic gases or vapors will depend on the acid involved. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas. Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is substantially complete.
- Calcium Sulfate Dihydrate (Gypsum): Aluminum (at high temperatures), diazomethane.
- Calcium Carbonate (Limestone) ignites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium.

Hazardous decomposition products: Under normal conditions of storage and use, hazardous decomposition products should not be produced. In fire conditions, depending on temperature, air supply and presence of other materials, decomposition products can include, but are not limited to carbon dioxide, carbon monoxide, silica oxides, sulfur oxides, metal oxides.

SECTION 11 – TOXICOLOGICAL INFORMATION

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

Symptoms of exposure:

Acute toxicity:

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

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

Inhalation: May cause respiratory tract irritation and coughing.

Skin corrosion / irritation:

May cause skin burns. 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, pain and in the worst case blindness. Dust may cause abrasion of the cornea.

Specific target organ toxicity, single exposure:

This product contains components that are causing respiratory tract irritation after single exposure.

Portland Cement, CAS #: 65997-15-1

Aspiration hazard: Not an aspiration hazard.

Chronic toxicity:

Respiratory and Skin Sensitizer:

This product contains trace amounts of chemical (impurity) that is reported to be a skin sensitizer.

Chromium (VI) Compounds, CAS #: 18450-29-9: skin sensitizer; present in Portland Cement at level <0.1%.

Germ cell mutagenicity:

Risk to humans is not expected from exposure to this product.

Carcinogenicity:

This product contains components/impurities reported to be carcinogenic to humans.

Crystalline Silica, CAS #: 14808-60-7: IARC: Group 1 (Carcinogenic to humans)

NTP: Known to be a Human Carcinogen (Respirable size)

ACGIH: Group A2 (Suspected Human Carcinogen)

NIOSH: Potential occupational carcinogen

Amorphous Silica, CAS #: 7631-86-9: IARC: Group 3 (Not Classifiable as to its Carcinogenicity to Humans)

Chromium (VI) Compounds, CAS #: 18450-29-9: IARC: Group 1 (Carcinogenic to humans)

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Titanium dioxide, CAS #: 13463-67-7:

IARC: Group 2B (Possibly Carcinogenic to Humans)

ACGIH: Not classifiable as human carcinogen

Reproductive toxicity:

Risk to humans is not expected from exposure to this product. However, this product contains trace amounts of chemical (impurities) that are reported to cause developmental issues.

Chromium (VI) Compounds, CAS #: 18450-29-9

Methyl alcohol, CAS #: 67-56-1

Specific target organ toxicity, repeated exposure:

Lungs, respiratory system, kidney, liver, eyes, skin.

Hazards by inhalation associated with Crystalline Silica, respirable dust particles <10µ in diameter:

- **Silicosis:** The prolonged and repeated inhalation of silica dust can cause silicosis, a fibrosis (scarring) of the lungs. Silicosis can exist in several forms: chronic, accelerated, or acute and may lead to disability and death.
- **Lung Cancer:** Workers with silicosis who smoke are at the greatest risk. Preventing the onset of silicosis will reduce the cancer risk.
- **Tuberculosis:** If exposed to tuberculosis bacteria, individuals with chronic silicosis are at three time higher risk to develop pulmonary tuberculosis.
- **Non-Malignant Respiratory Diseases:** Increased incidence of chronic bronchitis, emphysema and small airways disease.
- **Autoimmune and Chronic Kidney Diseases:** Several studies have reported excess cases of several autoimmune disorders (scleroderma, systemic lupus, rheumatoid arthritis) and kidney diseases (including end stage renal disease) among silica-exposed workers.

Medical conditions aggravated by overexposure:

Lungs disease and respiratory disorders (asthma, bronchitis, emphysema, chronic obstructive pulmonary disease), skin disorders, kidney diseases if product is handled without adequate protection.

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

Components	Test Results
Amorphous Silica, CAS #: 7631-86-9	<u>Acute Toxicity</u> Oral LD50 (Rat): 3,160 mg/kg Skin corrosion/irritation: not irritating Serious eye damage/eye irritation: can cause moderate eye irritation and may cause abrasion to the cornea. <u>Chronic toxicity</u> Carcinogenicity: IARC: Group 3 (Not Classifiable as to its Carcinogenicity to Humans) STOT, RE: Inhalation (Rat): Structural or functional change in trachea or bronchi, pneumoconiosis, enzyme inhibition, change in blood or tissue levels, weight loss or decreased weight gain.
Portland Cement, CAS #: 65997-15- 1	<u>Acute Toxicity</u> Oral: May cause burns to mouth, throat and stomach. Dermal LD50 (Rabbit): >9,400 mg/kg Inhalation: May cause respiratory irritation. Skin corrosion/irritation: May cause skin irritation. May cause serious burns in presence of moisture. Serious eye damage/eye irritation: Causes serious eye damage. May cause serious burns in presence of moisture. STOT, SE: Category 3; by inhalation and skin contact; effects: respiratory tract irritation, skin irritation <u>Chronic Toxicity</u> Sensitization: May cause respiratory sensitization and severe allergic skin reaction due to the potential presence of trace amounts of hexavalent chromium. Repeated or prolonged inhalation of dust may lead to chronic respiratory irritation. If sensitized to hexavalent chromium, a severe allergic dermal reaction may occur when subsequently exposed to very low levels. Carcinogenicity: IARC, NTP, OSHA, ACGIH: Not classifiable as a human carcinogen; but contains Chromium Compounds (<0.1%) that are considered to be carcinogen. Reproductive toxicity: contains trace amounts of hexavalent chromium which is reported to cause developmental issues. STOT, RE: category 1; by inhalation; respiratory tract and kidney.
Crystalline Silica, CAS #: 14808-60-7	<u>Acute Toxicity</u> Skin corrosion/irritation: not irritating Serious eye damage/eye irritation: can cause moderate eye irritation and may cause abrasion to the cornea. <u>Chronic Toxicity</u> Carcinogenicity: Contains respirable crystalline silica which is classified as a known human carcinogen. STOT, RE: Prolonged inhalation of crystalline silica may result in silicosis, a disabling pulmonary fibrosis characterized by fibrotic changes and nodules in the lungs, a dry cough, shortness of breath, emphysema, decreased chest expansion, and increased susceptibility to tuberculosis. In advanced stages, loss of appetite, pleuritic pain, and total incapacity to work. Advanced silicosis may result in death due to cardiac failure or destruction of lung tissue. The chronic health risks are associated with respirable particles of 3-4 um over protracted periods of time. For routine exposure and for individuals with existing respiratory illness (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) symptoms include shortness of breath, wheezing, cough, sputum production, weight loss, fever. Noted are also effects on liver based on human evidence.
Calcium Sulfate Dihydrate (Gypsum), CAS #:13397-24-5	Under normal conditions of intended use, this material does not pose a risk to health. <u>Acute Toxicity – Low hazard</u> Inhalation: dust can be irritating on mucous membranes of the upper respiratory tract. Skin corrosion/irritation: May cause mild skin irritation. Serious eye damage/eye irritation: May cause eye irritation. Aspiration hazard: No. <u>Chronic Toxicity</u> Sensitization: Not expected to be a sensitizer. Germ cell mutagenicity: no evidence. Carcinogenicity: Not carcinogenic by IARC, NTP, OSHA, ACGIH; not on California 65 list. Reproductive toxicity: no evidence. STOT, RE: May cause irritation to mucous membrane and upper respiratory system; cough, sneezing, discharge.

Calcium Carbonate (Limestone), CAS #: 1317-65-3	<u>Acute toxicity</u> Oral LD50 (Rat): >5,000 mg/kg Skin corrosion/irritation: May cause skin irritation. Serious eye damage/eye irritation: May cause eye irritation. Inhalation: irritation to mucous membrane and respiratory tract; symptoms: cough, sneezing, discharge. <u>Chronic Toxicity</u> STOT, RE: Inhalation (Rat): causes damage to lungs, liver, kidney, ureter, and bladder.
Hydrated Aluminum Silicate (Kaolin), CAS #: 1332-58-7	<u>Acute Toxicity</u> Skin corrosion/irritation: May cause skin irritation. Serious eye damage/eye irritation: May cause eye irritation. When introduced directly into trachea or pleural cavity has acute effect on lungs, respiratory system, brain (changes in cerebral spinal fluid, other degenerative changes), and immune system. <u>Chronic Toxicity</u> Carcinogenicity: IARC: Not carcinogenic to humans. STOT, RE: Causes chronic pulmonary fibrosis, stomach granuloma.
Titanium dioxide, CAS #: 13463-67-7	<u>Acute toxicity</u> Oral LD50 (Rat): >5,000 mg/kg; a very insoluble compound. The studies in several species, including man, show neither significant absorption nor tissue storage following ingestion of titanium dioxide. Inhalation LC50 (Rat): >6.82 mg/L Skin corrosion/irritation (Rabbit): Slight or no skin irritation. Not dermally absorbed by humans. Serious eye damage/eye irritation (Rabbit): Slight or no eye irritation. <u>Chronic Toxicity</u> Sensitization (Mouse): Not sensitizing on laboratory animals. Germ cell mutagenicity: Non genotoxic. Carcinogenicity: IARC: Group 2B: Possibly carcinogenic to humans; No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by NTP, ACGIH and OSHA. Titanium dioxide is a frequently used compound in lung clearance studies, where a biologically inert substance is required, however inhalation of high concentrations of fine or ultrafine titanium dioxide particles has been shown to result in pulmonary inflammation, fibrosis, and lung tumors in rats. The same inhalation effects were not observed in mice and hamsters and may be a rat-specific threshold phenomenon, dependent upon lung overloading at high exposure concentrations and possibly of little relevance to humans. Epidemiological data suggest that there is no carcinogenic effect associated with workplace exposure to titanium dioxide dust. STOT, RE: Inhalation: Lung fibrosis; potential occupational carcinogen

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity: Not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability: Not readily biodegradable by OECD criteria.

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, where available:

Components	Test Results
Crystalline Silica (Quartz), CAS #: 14808-60-7	Not known to be ecotoxic; no data suggests that is toxic to birds, fish, invertebrates, microorganisms or plants.
Calcium Sulfate Dihydrate (Gypsum), CAS #: 13397-24-5	Not classified as environmentally hazardous; However, this does not exclude harmful or damaging effect on the environment in the case of large or frequent spills. Fish: LC50 (Fathead minnow), 96hrs: >1970 mg/L. Biodegradability: Not applicable for the salt of inorganic compounds. Bioaccumulation: not expected. Mobility in Soil: a low potential for adsorption to soil; however, it dissolves in presence of water.
Calcium Carbonate (Limestone), CAS #: 1317-65-3	<u>Acute toxicity</u> Fish LC50 (Rainbow Trout), 96hrs: >10,000 mg/L Aquatic invertebrates EC50 (Daphnia magna), 48hrs: >1,000 mg/L Aquatic plants EC50 (Algae), 72hrs: >200 mg/L In solid state, this mineral is a major part of the rocks of earth's surface and is not biodegradable. Negative effect on environment should be therefore excluded. It is dissolved in a natural state and indispensable part of natural waters. Concentrated suspensions of minerals in natural waters may have an unfavorable effect on water organisms.
Titanium dioxide, CAS #: 13463-67-7	Aquatic toxicity: Fish LC0 (orfe, freshwater fish), 48h: >1,000 mg/L. Persistence and degradability: Methods for the determination of biodegradability are not applicable to inorganic substances. Bioaccumulative potential: The product is practically insoluble in water and not biodegradable. Mobility in soil: No data available. PBT and vPvB assessment is not required for inorganic substances. Titanium dioxide is a stable compound that is insoluble in water and therefore would not be expected to be present in drinking water. Based on the lack of absorption as well as no identified toxicological effects of concern in animal testing, there are also no risk concerns for nontarget terrestrial organisms resulting from the use of titanium dioxide as an inert ingredient.

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.

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Container disposal: Even after emptying, container may retain residues. Containers should be completely emptied 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/CAO: 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 or impurities of this product are present above De Minimis level and therefore do not require reporting.

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

No components are subject to the reporting. Some of the components contain trace amounts of the following chemicals that require reporting if a criterion of reportable quantity is fulfilled:

Fine Mineral Fibers of average diameter $\leq 1\mu\text{m}$ (including Crystalline Silica, CAS #: 14808-60-7 with diameter $\leq 1\mu\text{m}$)

Chromium (VI) Compounds, CAS #: 18540-29-9: *for Chromium, CAS #: 7440-47-3: RQ: 5,000 lbs

Methyl alcohol, CAS #: 67-56-1: RQ: 5,000 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 and Table Z-3:

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®
		mppcf	mg/m ³	8hrs TWA, mg/m ³	Up to 10hrs TWA, mg/m ³	8hrs TWA, mg/m ³
Amorphous Silica, CAS #: 7631-86-9	Total dust	20	80 : (%SiO ₂)	6	6	See TLV® book Appendix G
	Respirable fraction			3		
Portland Cement, CAS #: 65997-15- 1	Total dust	50	15	10 (as PNOR)	10	-
	Respirable fraction	-	5	5 (as PNOR)	5	1 *
Crystalline Silica (Quartz), CAS #: 14808-60-7	Total dust	-	30 : (%SiO ₂ +2)	0.3	-	-
	Respirable fraction	250 : (%SiO ₂ +5)	10 : (%SiO ₂ +2)	0.1	0.05; Ca See Appendix A	0.025 (for α -quartz & cristobalite)
Calcium Sulfate Dihydrate (Gypsum), CAS #:13397-24-5	Total dust	-	15	10 (as PNOR)	10	-
	Respirable fraction	-	5	5 (as PNOR)	5	-
Calcium Carbonate (Limestone), CAS #: 1317-65-3	Total dust	-	15	10 (as PNOR)	10	See TLV® book Appendix G
	Respirable fraction	-	5	5 (as PNOR)	5	-
Hydrated Aluminum Silicate (Kaolin), CAS #: 1332-58-7	Total dust	-	15	-	10	-
	Respirable fraction	-	5	2 *	5	2 *
Titanium Dioxide, CAS #: 13463-67-7	Total dust	-	15	10 (as PNOR)	2.4 mg/m ³ (fine) 0.3 mg/m ³ (ultrafine), Ca See Appendix A & C	10
Chromium (VI) Compounds, CAS #: 18540-29-9		-	-	0.005 as Cr © 0.1	0.001; Ca See Appendix A & C	0.05 water soluble (includes chromic acid & chromates)
Methyl alcohol, CAS #: 67-56-1		200 ppm	260	200 ppm	200 ppm	200 ppm
Inert or Nuisance Dust	Total dust	50	15	10 (as PNOR)	See Appendix D	10
	Respirable fraction	15	5	5 (as PNOR)	See Appendix D	3
Particulates Not Otherwise Regulated (PNOR)	Total dust	-	15	10	-	-
	Respirable fraction	-	5	5	-	-

*- no asbestos and <1% Crystalline Silica; © Ceiling; Ca – Potential occupational carcinogens; mppcf – millions of particles per cubic foot; ppm-parts per million; Appendix A, C and D refers to Appendixes of Hazardous Air Pollutants List, Section 112(b) of Clean Air Act

NIOSH IDLH: Crystalline Silica (Quartz), CAS #: 14808-60-7: Respirable fraction: 50 mg/m³
 Amorphous Silica, CAS #: 7631-86-9: Total dust: 3,000 mg/m³;
 Titanium dioxide, CAS #: 13463-67-7: 5000 mg/m³, Ca

Clean Water Act:

- Section 307(a): No components are subject to the reporting. Some of the components contain trace amounts of the following chemicals that require reporting: Chromium (VI) Compounds, CAS #: 18540-29-9

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

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.
- Crystalline Silica (airborne, unbound particles of respirable size), CAS #: 14808-60-7
 - causes cancer; Date listed: October 1, 1988
 - California Inhalation Reference Exposure Level (REL): California established a chronic REL of 3 µg for silica (crystalline, respirable). A chronic REL is an airborne level of a substance at or below which no adverse health effects are anticipated in individuals indefinitely exposed to the substance at that level.
 - Chromium (VI) Compounds, CAS #: 18540-29-9
 - causes cancer; Date listed: February 27, 1987
 - developmental (female, male); Date listed: December 19, 2008
 - Titanium dioxide (airborne, unbound particles of respirable size), CAS #: 13463-67-7
 - causes cancer; Date listed: September 2, 2011
 - Methyl alcohol, CAS #: 67-56-1
 - developmental; Date listed: March 16, 2012

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

International Regulations/Inventories:
Canadian Regulations

DSL: 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
 Class E: Corrosive (due to corrosive effect on Aluminum)

WHMIS Label Information:

International Exposure Limits

Country	Portland Cement, CAS #: 65997-15-1	Crystalline Silica (Quartz), CAS #: 14808-60-7	Calcium Sulfate Dihydrate (Gypsum), CAS #: 13397-24-5	Calcium Carbonate (Limestone), CAS #: 1317-65-3	Hydrated Aluminum Silicate (Kaolin), CAS #: 1332-58-7	Titanium Dioxide, CAS #: 13463-67-7
Australia; July, 2008	-	TWA 0.1 mg/m ³	-	-	-	-
Belgium; March, 2002	TWA 10 mg/m ³	TWA 0.1mg/m ³ (RD)*	-	TWA 10 mg/m ³	TWA 2 mg/m ³ (RD)	TWA 10 mg/m ³
Denmark; October, 2002	-	TWA 0.1 mg/m ³ (RD) TWA 0.3mg/m ³ (TD)*	-	-	TWA 2 mg/m ³ (RD)	TWA 6 mg(Ti)/m ³
Finland; January, 1999	-	TWA 0.2 mg/m ³	-	-	-	-
France; February, 2006	-	VME 0.1 mg/m ³ (RD)	-	-	VME 10 mg/m ³	VME 10 mg/m ³
Germany; 2005	MAK 5 mg/m ³ (ID)*	-	-	-	-	MAK 1.5mg/m ³ (RD)
Hungary; September, 2000	TWA 10 mg/m ³	-	-	TWA 10 mg/m ³	-	-
Japan; April, 2007	1 mg/m ³ (RD), 4 mg/m ³ (TD)	0.03 mg/m ³ (RD), continuous	-	1 mg/m ³ (RD), 4 mg/m ³ (TD)	0.5 g/m ³ (RD), 2 mg/m ³ (TD)	1 mg/m ³ (RD), 4 mg/m ³ (TD)
Korea; 2006	TWA 10 mg/m ³	TWA 0.1 mg/m ³	TWA 10 mg/m ³	TWA 10 mg/m ³	TWA 10 mg/m ³	TWA 10 mg/m ³
Mexico; 2004	TWA 10 mg/m ³ , STEL 20mg/m ³ (ID)	TWA 0.1 mg/m ³ (RD)	TWA: 10 mg/m ³ , STEL: 20 mg/m ³	TWA 10 mg/m ³ , STEL 20 mg/m ³ (ID)	TWA 10 mg/m ³ , STEL 20 mg/m ³	TWA 10 mg(Ti)/m ³ , STEL 20 mg(Ti)/m ³
The Netherlands; 2003	MAC-TGG 10 mg/m ³	MAC-TGG 0.075 mg/m ³	-	MAC-TGG 10 mg/m ³	MAC-TGG 10 mg/m ³	MAC-TGG 10 mg/m ³
New Zealand; January, 2002	TWA 10 mg/m ³ (ID)	TWA 0.2 mg/m ³ (RD)	-	TWA 10 mg/m ³ (ID)	TWA 10 mg/m ³ (ID), TWA 2 mg/m ³ (RD)	TWA 10 mg/m ³ (ID)
Norway; January, 1999	-	TWA 0.1 mg/m ³ (RD), TWA 0.3 mg/m ³ (TD)	-	-	-	TWA 5 mg/m ³
Poland; January, 1999	-	-	-	MAC(TWA) 10 mg/m ³	-	MAC(TWA) 10 mg(Ti)/m ³ , MAC(STEL) 30 mg(Ti)/m ³
Russia; June, 2003	-	TWA 1 mg/m ³ STEL 3 mg/m ³	-	STEL 6 mg/m ³	-	TWA 10 mg/m ³
Sweden; June, 2005	-	TWA 0.1 mg/m ³ (RD)	-	-	-	TWA 5 mg/m ³ (TD)

Released: August 17, 2015

Switzerland; December, 2006	MAK/week 5 mg/m ³	MAK/week 0.15mg/m ³	-	MAK/week 3 mg/m ³	MAK/week 3 mg/m ³	MAK- week 3 mg/m ³
Thailand; January, 1993	-	TWA 10 mg/m ³ (RD), TWA 30 mg/m ³ (TD)	-	-	-	-
United Kingdom; 2005	TWA 10 mg/m ³ (ID), TWA 4 mg/m ³ (RD)	TWA 0.3 mg/m ³ (RD)	TWA: 10 mg/m ³ (ID), TWA: 4 mg/m ³ (RD)	TWA 10 mg/m ³ (ID), TWA 4 mg/m ³ (RD)	TWA 2 mg/m ³ (RD)	TWA 10 mg/m ³ (ID), TWA 4 mg/m ³ (RD)
Argentina, Bulgaria, Colombia, Jordan, Singapore, Vietnam	ACGIH TLV TWA 10 mg/m ³ (TD)	ACGIH TLV Not classifiable as human carcinogen	ACGIH: TWA: 10 mg/m ³	ACGIH TLV	ACGIH TLV Not classifiable as human carcinogen	ACGIH TLV Not classifiable as human carcinogen
Egypt; January, 1993	-	-	-	-	-	TWA 15 mg/m ³
Turkey; January, 1993	-	-	-	-	-	TWA 15 mg/m ³

*TD-total dust; RD-Respirable dust; ID-Inhalable dust

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
MAK	Maximale Arbeitsplatz-Konzentration (maximum workplace concentration)
HEPA	High Efficiency Particulate Air
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: August 17, 2015 – Preparation of SDS in accordance to the GHS requirements

Date of the previous revision: June 19, 2013

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.