

## SAFETY DATA SHEET

### 1. PRODUCT IDENTIFICATION

CHEMICAL NAME: N/A  
CHEMICAL FORMULA: N/A  
MOLECULAR WEIGHT: N/A  
TRADE NAME: Recycled Mineral Fillers (RMF)  
SYNONYMS: RMF  
DOT IDENTIFICATION NO: None

### 2. HAZARDS IDENTIFICATION

Signal Word: Warning  
GHS Classification: Eye, skin, respiratory irritant (Category 4)  
Pictogram: Irritant  
OSHA\MSHA Hazards: Nuisance Dust.  
Target Organs: Eye, lungs.



Hazardous Material Information System (HMIS) USA:  
Health Hazard-0 (minimal)  
Flammability Hazard-1 (slight)  
Reactivity Hazard-0 (minimal)  
Personal Protection-E (glasses, gloves, dust respirator)

#### Hazard Statements:

Angular gray particles of fine powder. Handling of RMF may generate silica containing respirable dust particles. Inhalation of excessive particulate matter may cause respiratory problems. Crystalline silica, a component of this product, has been designated as a Group I carcinogen by IARC.

Primary route of Exposure: Inhalation  
Secondary: Skin, Ingestion

Eye Contact: Direct contact with dust may cause irritation by mechanical abrasion. Conjunctivitis may occur. Exposure to asphalt fumes when the RMF is heated may cause irritation, redness or pain.

Skin Contact: Direct contact may cause irritation by mechanical abrasion or corrosiveness of product. Contact with heated material can cause serious burns.

Skin Absorption: Not expected to be a significant exposure route.

Ingestion: Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury. Ingestion of large amounts may cause gastrointestinal irritation and blockage.

Inhalation: Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion or corrosive action. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may cause pneumoconiosis, such as silicosis and other respiratory effects.

Notes on Silicosis: Use of RMF for construction purposes is not believed to cause additional acute toxic effects. Repeated overexposures to respirable crystalline silica, (quartz, cristobalite, tridymite) for periods as short as 6 months has caused acute silicosis.

Chronic exposure to respirable quartz-containing dust in excess of appropriate exposure limits has caused silicosis, a progressive pneumoconiosis (lung disease). Restrictive and/or obstructive lung function changes may result from chronic exposure. Chronic tobacco smoking may further increase the risk of developing chronic lung problems.

Symptoms of acute silicosis include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain. Acute silicosis is a rapidly progressive, incurable lung disease and is typically fatal.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:** Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and /or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions. Smoking and obstructive / restrictive lung diseases may also exacerbate the effects of excessive exposure to this product.

### 3. COMPOSITION/INFORMATION ON COMPONENTS

COMPONENTS CHEMICAL	CAS #	% by weight ( approx )	MSHA/OSHA PEL	ACGIH TLV-TWA
Calcium Carbonate	471-34-1	80-100	-----	10 mg/m <sup>3</sup>
Silicon Dioxide	14808-60-7	<1	R-10mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2)	R- .05 mg/m <sup>3</sup>
Aluminum Oxide	1344-28-1	< 1	T- 15mg/m <sup>3</sup> /R- 5mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Al(OH) <sub>3</sub>	21645-51-2	< 1	T- 15mg/m <sup>3</sup> /R- 5mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Ferric Oxide	1309-37-1	< 1	10 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
Magnesium Oxide	1309-48-4	0-8	15mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Calcium Oxide	1305-78-8	0-43	5 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Sodium Oxide	1313-59-3	< 1	-----	2 mg/m <sup>3</sup> as NAOH
Potassium Oxide	12136-45-7	< 1	-----	-----
Oxidized Asphalt	8052-42-4	<1-4	-----	.5mg/m <sup>3</sup> as benzene- soluble aerosol

The composition of SiO<sub>2</sub> may be up to 100% crystalline silica. R=Respirable, T=Total. Crystalline silica is normally measured as respirable dust. The OSHA standard also presents a formula for calculation of the PEL based on total dust: 30 mg/m<sup>3</sup> / (%SiO<sub>2</sub> + 2). Particulate matter containing no asbestos and < 1 % crystalline silica. In general oxidation of polycyclic aromatic hydrocarbons destroys any carcinogenic potential.

### 4 – FIRST AID MEASURES :

**Eyes:** Immediately flush eyes with plenty of clean water for at least 15 minutes, while holding the eyelids open. Occasionally lift the eyelid to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eyes. Contact a physician if irritation persists or develops later.

**Skin:** Wash with soap and water. Contact a physician if irritation persists or develops later.

**Ingestion:** If a person is conscious, give a large quantity of water to induce vomiting; however, never attempt to make an unconscious person drink or vomit. Get medical attention.

**Inhalation:** Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or develops later.

## **5 – FIRE FIGHTING MEASURES :**

Flashpoint: Combustible

Flammable Limits In Air: Combustible

Extinguishing Agent: Dry chemical, carbon dioxide, regular foam or water fog. Do not use streams of water directly on the fire

Unusual Fire And Explosion Hazard: Contact with powerful oxidizing agents may cause fire and/or explosions (see Sec. 10 of this SDS). When product is heated or comes in contact with sparks or flames, the vapors formed may result in explosive mixtures with air. Vapors may travel to source of ignition and flash back. Fires may produce irritating, corrosive and/or toxic gases. The health effects of these products are further discussed in Section 11.

## **6 – ACCIDENTAL RELEASE MEASURES :**

Persons involved in cleaning should first follow the precautions defined in Section 7 of the SDS. Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable quartz-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material.

This product is not subject to the reporting requirements of Title III of SARA, 1986, and 40 CFR 372

## **7 – HANDLING AND STORAGE :**

This product is not intended or designed for, and should not be used as an abrasive blasting medium or for foundry applications. Follow protective controls set forth in Section 8 of this SDS when handling this product. Respirable quartz-containing dust may be generated during processing, handling and storage. Do not breathe dust. Avoid contact with skin and eyes. Do not store near food or beverages or smoking materials. Do not stand on piles of materials; it may be unstable. Do not store near flammable materials and hot surfaces.

## **8 – EXPOSURE CONTROLS / PERSONAL PROTECTION :**

Engineering Controls:

Ventilation: Use local exhaust, general ventilation or natural ventilation adequate to maintain exposures below appropriate exposure limits. If a person breathes large amounts of this material, move the exposed person to fresh air at once; other measures are usually unnecessary.

Other control measures: Respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) dust suppression (wetting), ventilation, process enclosure, and enclosed employee work stations.

Eye / Face Protection:

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated. If product contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the upper and lower eyelids. Get medical attention immediately. Contact lenses should not be worn when working with this chemical.

Skin Protection:

When handling heated material, avoid direct contact with skin by using heat insulated gloves and protective clothing.

Respiratory Protection:

Respirator Recommendations: For respirable quartz levels that exceed or are likely to exceed the TLV, a NIOSH-approved 100 series particulate filter respirator must be worn. If respirable quartz levels exceed or are likely to exceed an 8hr-TWA of 0.5mg/m<sup>3</sup>, a NIOSH-approved air purifying, full-face respirator with a 100 series particulate filter must be worn. If asphalt fumes exceeding the TLV are expected to be present, use any self-contained breathing apparatus that has a full face-piece and is operated in a pressure-demand or positive pressure mode in combination with an auxiliary self-contained

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positive-pressure breathing apparatus. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. For additional information contact NIOSH at 1-800-356-4674

Emergency or planned entry into unknown conditions or IDLH conditions : Any self-contained breathing apparatus that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode or any supplied-air respirator that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape from unknown or IDLH conditions: Any air-purifying, full-face piece respirator with a high efficiency particulate filter or any appropriate escape-type, self-contained breathing apparatus. If presence of asphalt fumes is expected, use with a combination of mounted organic vapor canister having a high-efficiency particulate filter.

#### General Hygiene Considerations:

There are no known hazards associated with this material when used as recommended. Following the guidelines in this SDS are recognized as good industrial hygiene practices. Avoid breathing dust. Avoid skin and eye contact. Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

## 9 – PHYSICAL AND CHEMICAL PROPERTIES :

Appearance And Odor: Gray particles of fine powder, mild petroleum odor

Specific Gravity: 2.8

Boiling Point: N/A

Vapor Pressure: N/A

Evaporation Rate: 0

Vapor Density In Air (air = 1): N/A

% Volatile, By Volume: 0 %

Solubility In Water: Negligible

## 10- STABILITY AND REACTIVITY

Stability: Stable

Conditions To Avoid: Contact with incompatible materials (see below)

Incompatibility (Materials to avoid): Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride and oxygen difluoride may cause fire and/or explosions. Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetra fluoride.

## 11 – TOXICOLOGICAL INFORMATION

This product is a mixture of components. The composition percentages are listed in Section 2. Toxicological information for each component is listed below:

Silicon Dioxide: It is comprised of amorphous and crystalline forms of silica. In some batches, crystalline silica may represent up to 100% of silicon dioxide.

Respirable crystalline silica (quartz):

ACGIH TLV = .05mg/m<sup>3</sup>

MSHA and OSHA PEL:

Crystalline quartz (respirable): PEL-TWA 10mg/m<sup>3</sup>/ (%SiO<sub>2</sub> + 2).

Crystobalite: Use half the value calculated from the count or mass formula for quartz.

Tridymite: Use half the value calculated from the formula for quartz.

Other Particulates: TLV = 10mg/m<sup>3</sup> (inhalable/total particulate, not otherwise classified), TLV = 3mg/m<sup>3</sup> (respirable particulate, not otherwise classified), OSHA PEL = 15mg/m<sup>3</sup> (total particulate, not otherwise regulated), OSHA PEL = 5mg/m<sup>3</sup> (respirable particulate, not otherwise regulated).

ACGIH, MSHA, and OSHA have determined that adverse effects are not likely to occur in the workplace provided exposure levels do not exceed the appropriate TLVs/PELs. Lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions such as those described below.

**Medical Conditions Aggravated By Exposure:**

Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and/or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions.

Occupational exposure to free silica is known to produce silicosis, a chronic, disabling lung disease characterized by the formation of silica-containing nodules of scar tissue in the lungs. Simple silicosis, in which the nodules are less than 1 cm in diameter is generally asymptomatic but can be slowly progressive, even in the absence of continued exposure.

Silicosis leads to conditions such as lung fibrosis and reduced pulmonary function. The form and severity in which silicosis manifests it depends in part on the type and extent of exposure to silica dusts: chronic, accelerated and acute forms are all recognized. In later stages the critical condition may become disabling and potentially fatal. Restrictive and/or obstructive changes in lung function may occur due to exposure. A risk associated with silicosis is development of pulmonary tuberculosis (silico-tuberculosis). Respiratory insufficiencies due to massive fibrosis and reduced pulmonary function, possibly with accompanying heart failure, are other potential causes of death due to silicosis.

Symptoms of Silicosis: Not all individuals with silicosis will exhibit symptoms (signs) of the disease. However, silicosis is progressive, and symptoms can appear at any time, even years after exposures have ceased. Symptoms of silicosis may include (but are not limited to): shortness of breath, difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Respirable dust containing newly broken particles has been shown to be more hazardous to animal in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for 60 days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken pieces of silica.

There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed silicosis ; and therefore, this evidence does not conclusively prove a casual relationship between silica or silicosis and these adverse health effects. Several studies of persons with silicosis also indicate increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of silicosis do not account for lung cancer cofounders, especially smoking. In October 1996, an IARC working group re-assessing crystalline silica, a component of this product, designated crystalline silica as carcinogenic (Group 1). The NTP indicates that crystalline silica is reasonably anticipated to be a carcinogen (Group 2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica. Crystalline silica in October 1996 was listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 (California Proposition 65) as a chemical known to the state to cause cancer or reproductive toxicity.

Aluminum Oxide:

Exposure route: Eyes, skin, inhalation.

Target organs: Eyes, skin, respiratory system.

Acute effect: Animal studies with  $\alpha$ -alumina were reported in 1941. This study found that alumina particles well below 40  $\mu$ m in diameter produced a “nuisance particulate” reaction in animals. Very fine Al<sub>2</sub>O<sub>3</sub> powder was not fibrogenic in rats, guinea pigs, or hamsters when inhaled for 6 to 12 months and sacrificed at periods up to 12 months following the last exposure.

Chronic effect/carcinogenicity: Aluminum oxide is not classifiable as a human carcinogen. Epidemiological surveys have indicated an excess of nonmalignant respiratory disease in workers exposed to aluminum oxide during abrasives production.

Alumina TriHydrate AL (OH)<sub>3</sub>:

Exposure route: Inhalation, eye/skin contact.

Target organs: Eyes, respiratory system.

Acute effect: Irritation of the eyes, skin and respiratory system and cough. Adverse health effects have generally not been reported in literature among workers using AL (OH)<sub>3</sub>.

Chronic effect/carcinogenicity: Not classified as human carcinogen.

Ferric Oxide:

Exposure route: Inhalation.

Target organs: Respiratory system.

Acute effect: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis. Experimental work in animals by intratracheal injection or by inhalation of iron oxide mixed with less than 5% silica has shown no evidence of fibrosis produced in lung tissue.

Chronic effect/carcinogenicity: It is not generally accepted that inhalation or dermal exposure to iron oxide dust or fume poses a carcinogenic risk to human beings. Not classifiable as to human carcinogen potential.

Magnesium Oxide:

Exposure route: Inhalation, eye/skin contact.

Target organs: Eyes, respiratory system.

Acute effect: Magnesium oxide dust caused slight irritation of the eyes and nose, conjunctivitis, inflammation of the mucous membrane, and coughing up discolored sputum after industrial exposures amongst workers exposed to an unspecified concentration of MgO. Acute toxicity causes nausea, malaise, general depression and paralysis of respiratory, cardiovascular and central nervous system.

Experiments with cats exposed to freshly formed MgO (magnesium ranging from 21 to 156 mg) fumes plus 10% carbon dioxide showed uniform but slight hypothermia. These animals rapidly returned to normal and showed no subsequent ill effect upon cessation of MgO inhalation.

Chronic effect/carcinogenicity: NIOSH indicated that there might be a carcinogenic risk from exposure to MgO dust.

Calcium Oxide:

Exposure route: Inhalation, eye/skin contact

Target organs: Eyes, skin, respiratory system.

Acute effect: Direct contact of CaO with tissues, can result in burns and severe irritation because of its high reactivity and alkalinity. Major complaints of workers exposed to lime consist of irritation of the skin and eyes, although inflammation of the respiratory passages, ulceration and perforation of the nasal septum, and even pneumonia has been attributed to inhalation of the dust.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Sodium Oxide:

Exposure route: Inhalation, ingestion, eye/skin contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: Corrosive – causes burns, irritation of skin, eyes, respiratory tract, extremely destructive of mucous membranes.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Potassium Oxide:

Exposure route: Inhalation, ingestion, eye/skin contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: If inhaled, causes sore throat, cough, burning sensation and shortness of breath. Contact with skin produces pain and blisters. Severe deep burns, redness and pain occur with eye contact. Ingestion of K<sub>2</sub>O results in burning sensations, abdominal pain, shock or collapse

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Calcium Carbonate:

Exposure route: Inhalation, eye/skin contact

Target organs: Eyes, skin, respiratory system.

Acute effect: Irritation of the eyes, skin and respiratory system and cough. It has been reported that there may be a silicosis risk when using impure RMF containing in excess of 3% quartz. However, it is claimed that pure calcium carbonate does not cause pneumoconiosis. Adverse health effects have generally not been reported in literature among workers using CaCO<sub>3</sub>.

Chronic effect/carcinogenicity: Not classified as human carcinogen.

Oxidized Asphalt:

Exposure route: Inhalation, ingestion, eye/skin contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: If product is heated or comes in contact with heated surfaces, exposure to asphalt fumes may increase. Asphalt fumes can cause ocular and respiratory irritation leading to coughing, shortness of breath, and headaches. Ingested asphalt has low toxicity however chewing of asphalt can cause gastric masses and stomach obstructions. Contact with hot asphalt can cause 2<sup>nd</sup> and 3<sup>rd</sup> degree burns.

Chronic effect/carcinogenicity: Not classified as human carcinogen. Repeated or prolonged exposure may aggravate asthma.

**12 – ECOLOGICAL INFORMATION**

No data available

**13 – DISPOSAL CONSIDERATIONS**

Waste Disposal Method:

Collect and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

**14 – TRANSPORT INFORMATION**

DOT Hazard Classification: None

Placard Required: None

Label Required: Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200(f)}, and applicable state and local regulations.

**15 – REGULATORY INFORMATION**

Crystalline silica, a component of this product, is on the NTP and IARC carcinogen lists, but not on the OSHA carcinogen list. In October 1996, an IARC Working group re-assessing crystalline silica, a component of this product, designated crystalline silica as a human carcinogen (Group 1 carcinogen).

Crystalline silica in October 1996 was listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 (California Proposition 65) as a chemical known to the state to cause cancer or reproductive toxicity.

US Federal Regulations:

TSCA Inventory: Yes, all elements are included on the list

**16 – OTHER INFORMATION**

ACGIH: American Conference of Governmental Industrial Hygienists

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C: Ceiling limit; the concentration that should not be exceeded during any part of the working exposure  
CFR: US Code of Federal Regulations  
DOT: US Department of Transportation  
IARC: International Agency for Research on Cancer  
IDLH: Immediately Dangerous to Life and Health  
NIOSH: National Institute for Occupational Safety and Health, US Dept. of Health and Human Services  
NTP: National Toxicology Program  
OSHA: Occupational Safety and Health Administration, US Dept. of Labor  
PEL: Permissible Exposure Limit  
SARA Title III: Title III of the Superfund Amendments and Reauthorization Act, 1986  
TLV: Threshold Limit Value  
TWA: Time-weighted Average

Notice: CIMBAR Performance Minerals believes that the information contained on this Safety Data Sheet is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all circumstances can be anticipated. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulations, rules, or insurance requirements. However, product must not be used in a manner which could result in harm.

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