Material Safety Data Sheet
New Ulm Quartzite Quarries

Section I Product Information

Product Name: Cherrystone Poultry Grit; Cherrystone Traction Grit; Fine Aggregate Materials
Chemical Name: Quartz Silica
Synonyms: Crystallized silicon dioxide; sand; crystalline silica; quartz

Manufacturer: New Ulm Quartzite Quarries
Route 5, Box 21
New Ulm, MN 56073
(507) 354-2925 (phone)

HMIS Hazard Rating
Health: 1* Flammability: 0 Physical Hazard: 0 Protective Equipment: E
Hazard Code: 0 = None; 1 = Slight; 2 = Moderate; 3 = Severe; 4 = Extreme; E = Safety glasses, gloves and dust respirator.
* Product has mild irritant effects from short term exposure, but can have severe effects from chronic exposure to respirable quartz silica at levels in excess of the exposure limits in Section II.

Section II Hazardous Ingredients

Hazardous Components	CAS Number	Concentration (%)	Federal OSHA PEL	ACGIH TLV	NIOSH REL
Quartz Silica	14808-60-7	94 - 95	0.1 mg/m^3 (respirable particles) 0.3 mg/m^3 (total dust)	0.025 mg/m^3 (respirable particles) A2 (suspected human carcinogen)	0.05 mg/m^3
Aluminum Oxide	1344-28-1	3 - 4	5 mg/m^3 (respirable particles) 10 mg/m3 (total dust)	10 mg/m^3 (total dust)	NA

Section III Physical Data

Physical State: Solid
Melting Point: 3110°F/1710°C
Volatility: NA
Evaporation Rate: NA
pH: NA
Vapor Pressure: 0 mmHg
Boiling Point: 4046°F/2230°C
Specific Gravity (Water=1): 2.2 – 3.0
Solubility in Water (20°C): Insoluble
MW: 60.09 g/mole
Odor & Description: Odorless. Light purple to pink, fine to coarse grains, which may result in small amounts of silica dust upon abrasion
Odor Threshold: NA

NA: Not applicable

Section IV Reactivity Data

Stability: Stable **Hazardous Polymerization:** Will not occur
Incompatibilities (Materials to Avoid): Quartz dissolves readily in hydrofluoric acid (HF), and can form silicon tetrafluoride, a corrosive gas. Quartz can react violently with powerful oxidizers such as chlorine trifluoride (ClF_3), manganese trifluoride (MnF_3), oxygen difluoride (OF_2), and certain other fluorine containing compounds.
Hazardous Decomposition Products: Silica will dissolve in hydrofluoric acid and produce a corrosive gas – silicon tetrafluoride.

Section V Fire and Explosion Hazards

Quartz is not flammable or combustible.
Flashpoint: NA **Lower Explosive Limit (LEL):** NA **Upper Explosive Limit (UEL):** NA
Autoignition Temperature: NA
Extinguishing Media: Quartz will not burn. For fires in an area where quartz is used or stored, use extinguishing media appropriate to controlling the type of fire present.
Unusual Fire/Explosion Hazards: None
NA: Not Applicable

Section VI Health Hazard Data

Note: the hazards described below relate primarily to inhalation of fine quartz silica in occupational settings. This includes, but is not limited to, the use of quartz silica in foundry operations, in abrasive grinding, in sand blasting and other applications where fine particulate may be generated. The adverse health effects described relate to prolonged and repeated exposure to respirable dust (fine dust capable of reaching the lungs). Use of coarse quartz silica for poultry grit, traction grit or in aggregate is unlikely to expose users to respirable dust.
Health Hazard Warnings: Carcinogen, Lung Disease (silicosis), Respiratory Irritant
Carcinogenicity: The National Toxicology Program lists crystalline silica (respirable size) as "known to be a human carcinogen" (11th Report on Carcinogens, USDHHS, NTP, January 2005). The International Agency for Research on Cancer (IARC) lists crystalline silica as a Group 1 carcinogen – carcinogenic to humans. The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." Crystalline silica is not regulated by the U. S. Occupational Safety and Health Administration (OSHA) as a carcinogen The American Conference of Governmental Industrial Hygienists (ACGIH) lists crystalline silica (quartz) as category A2 – Suspected Human Carcinogen. Crystalline silica (quartz) is specifically associated with lung cancer; it is not associated with any other types of cancers. The crystalline silica must be in the form of very tiny particles that can be inhaled into the lungs (respirable).
Primary Routes of Exposure: Inhalation
Effects of Short-term (Acute) Exposure:
Eye Contact: Contact with large particles or with fine dust may cause eye irritation. Signs and symptoms may include irritation, redness, scratching or tearing of the cornea. This is not unique to crystalline silica and applies to any abrasive dust.
Skin Contact: None
Inhalation: Exposure to dust may irritate the nose, throat and upper respiratory tract. Signs and symptoms may include soreness of the nose and throat, coughing and wheezing. This is not unique to crystalline silica and applies to any abrasive dust. These effects are only seen at very high dust concentrations much higher than the Exposure Limits listed in Section II. Some studies have indicated that acute silicosis may occur with exposures to extremely high concentrations of respirable crystalline silica over a short time period However these conditions are not likely to occur with the product use as intended,
Ingestion: No adverse effects expected.
Effects of Long-term (Chronic) Exposure:

Inhalation: Prolonged and repeated exposure to respirable crystalline silica dust may cause silicosis, which is a chronic lung disease with that causes scar tissues in the lungs. The scarring is progressive and irreversible. The risk of developing silicosis increases with the length and magnitude of exposure to silica dust. The onset of silicosis may be from 1 – 20 years from the initial exposure, depending upon the magnitude of exposure. The symptoms of silicosis include cough, shortness of breath, wheezing, increased susceptibility to tuberculosis, and chronic fatigue. Once diagnosed, silicosis usually progresses rapidly. Some studies in workers exposed to respirable crystalline silica have shown an increased incidence in chronic bronchitis and emphysema, scleroderma, connective tissue disorders, lupus, rheumatoid arthritis, and chronic kidney diseases. It is unclear whether the observed associations exist only with underlying silicosis, only among smokers, or result from exposure to mineral dusts generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

In addition to silicosis, exposure to crystalline silica is associated with lung cancer. The risk of developing lung cancer is especially pronounced in workers diagnosed with silicosis. The risk of cancer increases with the length and magnitude of exposure.

Medical Conditions Aggravated: Long-term exposure to respirable silica dust may aggravate other lung conditions and increase the incidence of respiratory infections. Exposure to dust may aggravate existing eye conditions.

Section VII First Aid Measures

Eye Contact: If dust gets in the eyes, flush the eyes with large volumes of water. If irritation persists, get medical attention.

Skin Contact: No special measures are necessary. Practice good personal hygiene.

Inhalation: If nose and throat irritation are noticed, leave the exposure area. Note – nose and throat irritation are an indication that ventilation is insufficient and that either additional ventilation or respiratory protection are required. If difficulty breathing is noticed leave the exposure area and get fresh air. Get immediate medical attention.

Ingestion: None needed.

Section VIII Protective Measures

Personal Protective Equipment

Skin Protection: Although there are no reported dermal health effects from handling quartz silica, it is a good idea to minimize skin contact when handling any dusty material. Long sleeves, long pants and gloves are recommended when handling quartz silica.

Eye and Face: Wear safety glasses with side shields whenever handling the material.

Respiratory Protection: The National Institute for Occupational Health and Safety (NIOSH) recommends the following respiratory protection, based upon the measured concentration of crystalline silica (quartz) present in the workplace atmosphere:

Up to 0.5 mg/m^3: (APF = 10) Any air-purifying respirator with a high-efficiency particulate filter

Up to 1.25 mg/m^3: (APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate filter/(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Up to 2.5 mg/m^3: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

Up to 25 mg/m^3: (APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions: (APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus

Escape: (APF = 50) Any air-purifying, full-facepiece respirator with a high-efficiency particulate filter/Any appropriate escape-type, self-contained breathing apparatus.
The above information 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/npptl/topics/respirators; the user of this MSDS is directed to that site for information concerning respirator selection and use.
Personal Hygiene Practices: Do not smoke in the work areas where the product is used. Wash hands after handling the material. Maintain good housekeeping.
Engineering Controls: Engineering controls are the preferred means of minimizing worker exposure to crystalline silica (quartz) dust. Local or general ventilation should be used to maintain airborne concentrations below exposure limits (see Section II).

Section IX Spill Response Measures

Small spills: Do not dry sweep the spilled material. Carefully scoop up or vacuum (with a HEPA filtered vacuum cleaner). Collected materials should be placed in a sealed container.
Large spills: Take measures to prevent off-site release. If immediate clean-up is not possible, cover the spill with a tarp to prevent air dispersion. Seal nearby sewers and take any necessary measures to prevent entry into water ways. Follow same procedures as for small spills. Ensure clean-up personnel wear adequate protective equipment including respiratory protection.

Section X Handling and Storage

Do not use or store in the presence of HF or other reactive fluorine containing compounds (see Section IV). Keep material in closed or sealed containers to minimize dust release.

The material should be handled to minimize the generation of airborne dust. Where ever possible handle in closed systems or with wet processes. Adequate local and general ventilation should be provided. 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.

Section XI Waste Disposal Methods

Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq. This applies to materials as sold by NUQQ. These materials may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal of the used material. Disposal should be made in accordance with federal, state and local requirements.

Section XII Special Shipping Information

This material is not .regulated as a hazardous material (49 CFR §172.101) by the Department of Transportation (DOT).

Section XIII Regulatory Information

UNITED STATES

TSCA No.: Crystalline silica (quartz) appears on the EPA TSCA inventory under the CAS No. 14808-60-7

RCRA: Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261.

CERCLA: Crystalline silica (quartz) is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR §302.

SARA Title III: Crystalline silica (quartz) is not an extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

CAA (Clean Air Act): Crystalline silica (quartz) mined and processed by NUQQ is not processed with or does not contain any Class I or Class II ozone depleting substances.

FDA: Silica is included in the list of substances that may be included in coatings used in food contact surfaces, 21 CFR §175.300(b)(3)(xxvi).

CANADA
Domestic Substances List: Silica, as a naturally occurring substance, is on the Canadian DSL. WHMIS Classification: D2A

Date Prepared: December 16, 1994
Date Revised: March 24, 1997
Date Revised: June 11, 2004
Date Revised: February 12, 2008
Prepared and Revised by: Barr Engineering Company, Minneapolis, MN, (952) 832-2600

IMPORTANT

The information and data provided in this Material Safety Data Sheet are believed to be accurate and have been compiled from sources believed to be reliable. It is offered for your consideration, investigation, verification, and represents our current data and best opinion as to the proper use and handling of this product under normal conditions. There is no warranty of any kind, express or implied, concerning the accuracy or completeness of the information or data herein/ The supplier of this form will not be liable for claims relating to any party's use of or reliance on information and data contained herein regardless of whether it is claimed that the information and data are inaccurate, incomplete or otherwise misleading. This information relates to the material designated and may not be valid for such material used in combination with any other material nor in any process. Any use of the product which is not in conformance with this Materials Safety Data Sheet or which involves using the product in combination with any other product or any other process is the responsibility of the user.