


Safety Data Sheet (SDS)

1. Identification

Trade Name: Rainbow Prepared Gravel
Product Numbers: 4054
Company Name: Rainbow Technology Corporation
Company Address: 261 Cahaba Valley Parkway
 Pelham, AL 35124
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2. Hazard(s) Identification

Physical hazards: Not Classified	Health Hazards: Category 1A Specific target organ toxicity, repeated exposure – Category 2
	Signal word DANGER
	HAZARD STATEMENT: May cause cancer (inhalation). Causes damage to organs, (lungs, respiratory system) through prolonged or repeated exposure (inhalation).

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Precautionary statement: PREVENTION

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Wash hands thoroughly after handling.
- Do not eat, drink, or smoke when using this product.

Response

- If exposed or concerned, get medical advice/attention.

Disposal

- Dispose of contents/container in accordance with all local, regional, national and international regulations.

Supplemental information:

Respirable Crystalline Silica (RCS) may cause cancer. Silica Sand & Gravel may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC, NTP, ACGIH, who states that it is a suspected cause of cancer. Other forms of RCS (e.g. tridymite and cristobalite) may also be present or formed under certain industrial processes.

3. Composition/Information on ingredients

Chemical Name	CAS number	%
Silica sand and gravel	None 14808-60-7	100>1
Quartz (crystalline silica)		

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4. First-aid measures

Inhalation:

Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or if breathing is difficult.

Eyes:

Immediately flush eyes with plenty of clean water for at least 15 minutes, while holding the eyelid open. Occasionally lift the eyelid to ensure thorough rinsing. Beyond flushing, do no attempt to remove material from eyes. Contact a physician if irritation persists or later develops.

Skin: Was affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

Ingestion: If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

Most important symptoms/effects, acute and delayed: Dust may irritate the eyes, skin, and respiratory tract. Breathing silica containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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.

Indication of immediate medical attention and special treatment needed: Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

5. Fire-fighting measures

Suitable extinguishing media: This product is not flammable. Use fire extinguishing media or appropriate for surrounding materials.

Unsuitable extinguishing media: None

Specific hazards arising from the chemical: Contact with powerful oxidizing agents may cause fire and/or explosions (see Section 10 of SDS).

Fire-fighting equipment/instructions: No unusual fire or explosion hazards noted. Not a combustible dust.

Specific methods: The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

Environmental precautions: Prevent from entering into sewers or drainage systems where it can harden and clog flow.

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6. Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Persons involved with cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS.

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Methods and materials for containment and cleaning up:

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary.

7. Handling and storage

Precautions for safe handling

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this SDS as appropriate.

SANDSTONE MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.

Conditions for safe storage, including any incompatibilities:

Do not store near food, beverages, or smoking materials.

8. Exposure controls/personal protection

Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	5 mg/m ³	10 mg/m ³	NE
Respirable dust containing silica	15 mg/m ³ 5	10 (inhalable fraction) 3 TLV (respirable fraction)	Use Respirable Silica REL
Total dust containing silica	10 mg/m ³ (total dust) (respirable fraction)	Use Respirable Silica TLV	NE
Respirable Crystalline Silica (quartz)	1/2 of + (% silica + 2)	NE	0.1 mg/m ³
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	OSHA: 30 MSHA: 30 NE	10 mg/m ³ + (% silica + 2) 0.025 (% silica + 3) respirable dust PEL HA and MSHA respirable	0.05 mg/m ³ 0.05
	1/2 of	0.025	

Exposure Guidelines:

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

Engineering Controls:

Activities that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below allowable exposure limits.

Eye 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.

Skin Protection (Protective Gloves/Clothing):

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

Respiratory Protection:

All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable mg/m^3 exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 mg/m^3 , a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable

silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 mg/m^3 a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator Fit-testing, medical surveillance and other requirements.

9. Physical and chemical properties

Appearance:

Angular gray, white and tan particles ranging in size from powder to boulders.

Odor: No odor.	PH: Not applicable	Decomposition temperature: Not applicable
Melting point/freezing point: Not applicable	Initial boiling point and boiling range: Not applicable	Flash point: Non-combustible
Evaporation rate: Not applicable	Flammability: Not applicable	Upper/lower flammability or explosive limits: Not applicable
Vapor pressure: Not applicable	Relative density: Not applicable	Solubility: 0
Partition coefficient: n-octanol/water. Not applicable	Autoignition temperature: Not applicable	Specific Gravity (H ₂ O = 1): 2.6 - 2.75

10. Stability and reactivity

Reactivity: Not reactive under normal use.

Chemical stability:

Stable under normal temperatures and pressures.

Possibility of hazardous reactions: None under normal use.

Conditions to avoid (e.g., static discharge, shock or vibration):

Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

Incompatible materials:

Silica ignites on contact with fluorine and is incompatible with acids, aluminum, ammonium salts and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

Hazardous decomposition products:

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

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11. Toxicological information

Primary Routes of Exposure:

Inhalation and contact with the eyes and skin.

Symptoms related to the physical, chemical, toxicological characteristics

Inhalation:

Dusts may irritate the nose, throat and respiratory tract by mechanical abrasion. Coughing sneezing and shortness of breath may occur.

Symptoms of silicosis caused by chronic exposure to dust 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

Eye Contact:

Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision.

Skin Contact:

Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash.

Ingestion:

Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting, diarrhea, and blockage.

Medical Conditions Aggravated by Exposure:

Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

Delayed and immediate effects and also chronic effects from short- and long-term exposure:

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.

Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

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

There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

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Carcinogenicity:

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-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.

Additional information on toxicological-effects:

Acute toxicity: Not classified

Skin corrosion/irritation: Not classified

Serious eye damage/eye irritation: Not classified

Respiratory sensitization: Not classified.

Skin sensitization: Not classified.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Not classified

Specific target organ toxicity - single exposure: Not classified

Specific target organ- toxicity – repeated exposure: Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):

Not determined

Persistence and degradability: Not determined

Bioaccumulative potential: Not determined

Mobility in soil: Not determined

Other adverse effects: Not determined

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Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, release and disposal, and is not to be considered as a warranty or quality specification. The information related only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text of this SDS. Personnel handling this material must make independent determinations of the suitability and completeness of information from all sources to assure proper use and disposal of this material and the safety and health of employees and customers.