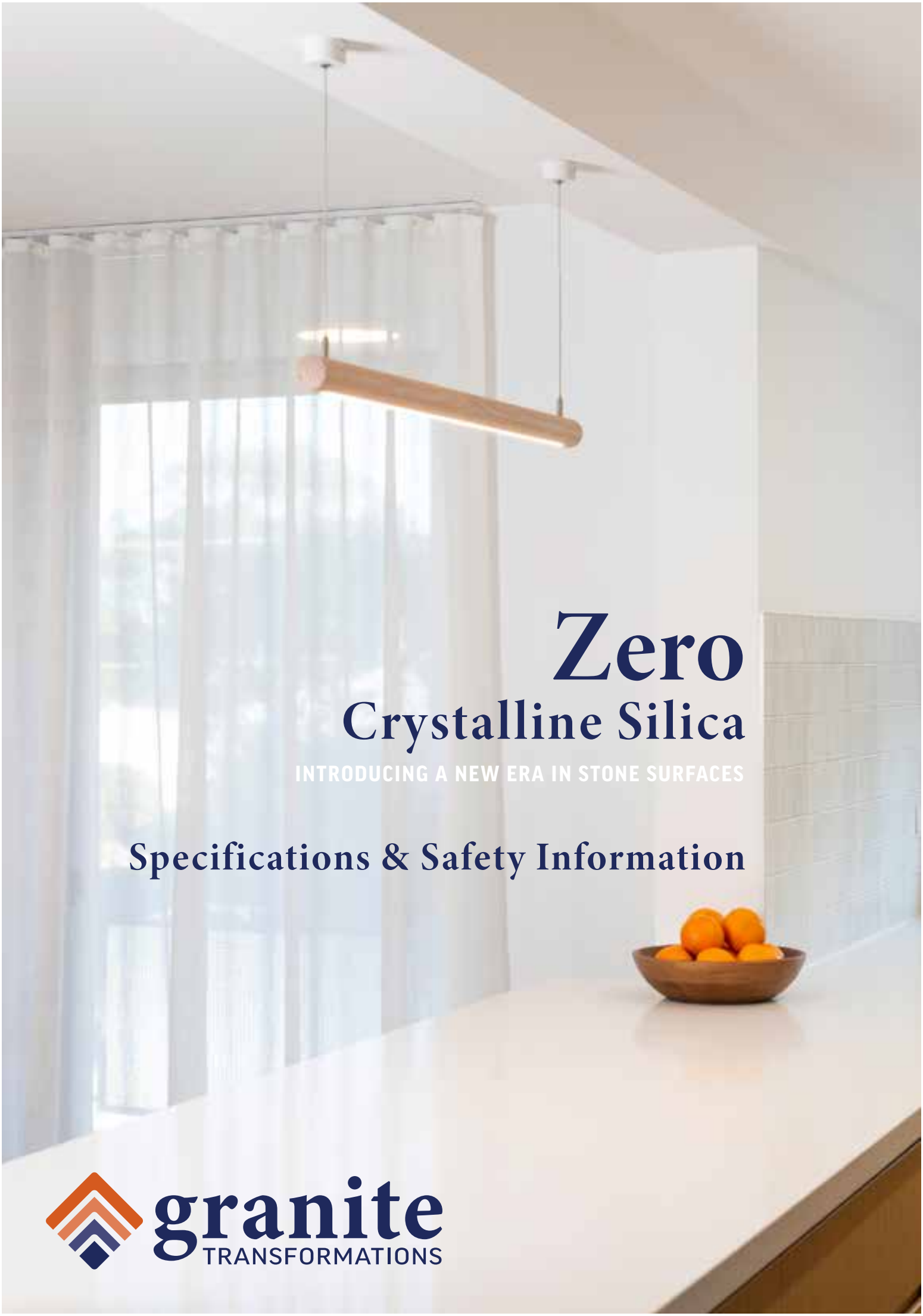

Zero
Crystalline Silica

INTRODUCING A NEW ERA IN STONE SURFACES

Specifications & Safety Information

granite TRANSFORMATIONS

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Product Specifications

GENERAL SPECIFICATION	TYPICAL
Slab size nominal	3000 x 1400 x 7mm
Slab size tolerance	Length +50 Width +10
Slab thickness tolerance	+/- 0.70 mm
Slab flatness	+/- 1 mm width/ +/-2mm length
Gloss	56
Slab weight	72 kg

PROPERTIES	TEST METHOD	TYPICAL VALUE
Specific Gravity	ASTM D792	2.40
Hardness	MOHS	7.6
Water Absorption	AS 1756-1989 (AS-3558.1)	0.03%
Colour Fastness	AS 1756-1989 (AS-3558.3)	No change
Impact Resistance	AS 1756-1989 (AS-3558.15)	No cracks or crazing
Impact Resistance	EN14617.9	3.30j unsupported 6.1j supported
Izod Impact Resistance	ASTM D256	2.23ft.lbf
Flexural Strength	ASTM D790	47Mpa
Resistance to Surface Scratching	AS 1756-1989 (AS-3558.4)	Unaffected
Resistance to Surface Scratching	AS/NZS 2924.2.14	6.5N
Wear Index	ASTM D4060	0.58mg/cycle
Heat Resistance	NEMA D2863	No Change
Steam Resistance	AS/NZS 2924.2.23	No Change
Boiling Water Surface	NEMA LD-3	No Change
Stain Resistance	AS 1756-1989 (AS-3558.2)	Pass. Any superficial stains were removed by water, undiluted bleach or Jiff.
Slip Resistance	AS/NZS 4586 Dry	Class F (medium)
Slip Resistance	AS/NZS 4586 Wet	21
Thermal Shock	ASTM C484	No cracks or crazing
Heat Release	AS/NZS 3837	Total Heat Released 50.1 MJ/kg
Average Specific Extinction Area	AS/NZS 3837	153.1 m2/kg
Critical Heat Flux	ASISO 9239.1	4
Early Fire Hazard Ignitability Index	AS1530.3 0-20	4
Early Fire Hazard Spread of Flame Index	AS1530.3 0-10	0
Early Fire Hazard Heat Evolved Index	AS1530.3 0-10	2
Early Fire Hazard Smoke Development Index	AS1530.3 0-10	2

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Safety Data Sheet

EARTHSTONE ZERO CRYSTALLINE SILICA ENGINEERED STONE

Safety Data Sheet

Current issue date: 10/05/2024

1. PRODUCT AND COMPANY DESCRIPTION

Product Name: EarthStone Zero Crystalline Silica Stone
Avoidance: Do not subject the product to dry processes which may generate large amount of fine dust.

Address: 7 Boola Place, Cromer NSW 2099 Australia
Tel: +61 2 8817 5900
Email: info@earthstone.net.au
Website: www.earthstone.net.au

2. HAZARD/S IDENTIFICATION

The finished Zero Silica Stone product as supplied is classified as non-hazardous under normal conditions and does not present any inhalation, ingestion, skin, or eye hazard. However, dust created when the product is cut, grinded or machined may contain small amounts of crystalline silica which may be respirable. These particles may result in respiratory and pulmonary damage. Personnel undertaking such work must follow health and safety information and take necessary precautions* before the commencement of such work. While this product contains <1% crystalline silica, the presence of dust drives the hazard classification of the product.

*minimum precautions – Wet cut; Wear a Class P3 respirator; Review Section 8 of SDS for more detail.

***** PLEASE READ CAREFULLY *****

DANGER![1]

GHS08 (Health Hazard)
Category 1A (Carcinogenicity) (H350, H372, H334)

GHS07 (Health Hazard)
Category 3 (Respiratory tract irritation) (H319, H335)

[1] Work Health and Safety Regulations: Classification and Labelling for Workplace Hazardous Chemical, Safe Work

HAZARD STATEMENTS:[2]

H319: May cause eye irritation

H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled

H335: May cause respiratory tract irritation

H350: May cause cancer (inhalation)

H372: Causes damage to organ (lungs) through prolonged and repeated exposure if inhaled

PREVENTIONS STATEMENTS:[3]

P202: Do not handle until all safety precautions have been read and understood

P260: Do not breath in dust particles generated during processing, working and cleaning

P264: Wash face and hands thoroughly after handling

P270: Do not eat, drink or smoke when using this product

P284: Wear respiratory protection for particles (P3 rating filters)

Refer to Section 7 for safe handling and storage, and, to Section 8 for dust exposure controls

FIRST AID MEASURES:

P314: Get medical advice/attention if you feel unwell after working with the product

POTENTIAL HEALTH EFFECTS:[4]

Inhalation: Do not inhale dust.

Workers, who have been repeatedly exposed to microcrystalline silica particles are at risk of developing silicosis – an incurable, progressive and degenerating disease which may cause severe inflammation and scaring of the lungs that can lead to permanent lung damage.

[2] Globally Harmonized System of Classification and Labelling of Chemicals (GHS)-Safe Work
[3] Precautionary Statements – Globally Harmonized System of Classification and Labelling of Chemicals, Safe Work
[4] Silicosis Fact Sheet – Lung Foundation Australia, and, Crystalline Silica Fact Sheet – Safe Work

The condition where damages are done by respirable silica to lung tissue causing it to scar and loss of normal functions, is known as **Silicosis**. Its symptoms, depending on the severity of the damage, include shortness of breath, persistent cough, chest pain, respiratory failure and may eventually lead to death.

Skin and Eye Contact:

Mineral dust contact may cause temporary irritation to skin such as redness and itching, and, can cause eye irritation with symptoms of burning, redness and tearing.

Aggravation of Pre-existing conditions:

Workers with pre-existing respiratory or skin/eye disorders may be more susceptible to the effects of this product during processing work. Pre-existing conditions such as asthma, emphysema, tuberculosis and other skin/eye allergies or diseases may be adversely aggravated where airborne silica particles are produced.

RESPONSE STATEMENTS:

P304+P340: IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P302+P350: IF ON SKIN: Wash with plenty of soap and water

P333+P313: IF SKIN IRRITATION/RASH OCCURS: Get medical advice/attention

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes, remove contact lenses if present and easy to do. Continue rinsing.

DISPOSAL STATEMENTS:

P501: Dispose of products and by products according to local, regional, national and international regulations

3. COMPOSITION AND INFORMATION ON INGREDIENTS

Inert slab with a stone-like appearance. The product is a solid, consisting predominantly of amorphous silica (i.e. recycled glass), mixed with polyester resin, chemical intermediate as well as inorganic pigments to create different colour variants. The recycled glass also contains small amounts of minerals and trace elements found in soil/rock that are not readily separable into the individual components. The final product does not release hazardous materials or particles after installation.

Percentage concentration estimations of crystalline silica listed below are taken from X-ray diffraction analysis of a sample of the product type. Other component ingredients are stated by the supplier.

See next page for ingredients

INGREDIENT	FORMULA	CAS NUMBER	% CONCENTRATION ESTIMATED MEAN
Quartz (crystalline silica)	SiO_2	14808-60-7	0.2%
Rutile	TiO_2	1317-80-2	1%
Recycled glass	Unknown	60676-86-0	>79%
Unsaturated Polyester Resin	Unknown	26123-45-5	<16%
Fe2O3	Fe_2O_3	1332-37-2	<1%
KH570	Unknown	2530-85-0	<1.8%
TBPO	Unknown	3006-82-4	<1.2%

The above estimated concentration percentage of quartz crystalline silica is based on a sample of the material provided for testing and due to the variable nature of such products, these may be subject to change.

*Amorphous material may contain amorphous silica which has an exposure limit when in respirable form. Refer to Section 8.

4. FIRST AID MEASURES

Manufactured stone slabs and other dimension stones in their normal state exert minimal health hazard. However, harmful silica particles may be produced during processing activities. The following necessary first aid measures must be observed in the event of any incident/accident.

EYE

Immediately flush with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contact lens if present and easy to do. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from eye(s). Get medical attention if irritation develops or persists.

SKIN

Wash off with soap and water. Get medical attention if irritation develops and persists.

INHALATION

Move person to fresh air. Call a physician if symptoms develop or breathing stops.

INGESTION

Rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

NOTES

Provide general supportive measures and treat symptomatically. Keep victim under observation as symptoms may be delayed.

Ensure that medical personnel and first aiders are aware of the materials involved and take appropriate precautions to protect themselves.

Pre-existing medical conditions may be aggravated by the exposure. Personnel with eye, skin and lung conditions, as well as tobacco smoking should avoid further exposure.

5. FIREFIGHTING MEASURES

Suitable Extinguishing Media	Non-combustible, non-flammable material, use fire extinguishing media appropriate for surrounding materials.
Special Protective Equipment	Use appropriate protective equipment for surrounding materials. No specific precautions noted as the product is an inert material.
General Information	No unusual fire or explosion hazards.

6. ACCIDENTAL RELEASE MEASURES

This product does not represent a risk of spillage

CLEAN UP AND DISPOSAL

Solid Slabs:	Can be disposed in accordance with local/state/federal regulations
Dust:	When large amount of dust is generated, clean-up personnel may be exposed to respirable crystalline silica-containing dust. Wear appropriate protective clothing and equipment (e.g. dust-proof goggles, rubber gloves, Class P3 respirator, coveralls and rubber boots). Do not dry sweep or use compressed air for dust clean-up. Misting of spilled material and collect it in sealable containers for disposal. Do not discharge fine particulates into drains or waterways.

7. HANDLING AND STORAGE

Storage:	Avoid dust formation and accumulation. Store in ventilated area.
Handling:	Do not handle until all safety precautions have been read and understood. Stone blocks/slabs are very heavy, use safe lifting methods and equipment to avoid injuries. Keep airborne dust formation to a minimum and provide proper exhaust and ventilation at places where dust may be generated. Wear appropriate personal protective equipment. Do not breath dust and avoid prolong exposure.
Hygiene:	Observe good personal/industrial hygiene practice, including removing and washing dusty clothing immediately after use, washing hands before eating, prohibit eating, drinking and smoking in contaminated areas.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

Exposure Guideline: Permissible Exposure Limit (PEL), PEL regulations vary in different countries, check PEL in country of use.There is no PEL associated with the finished product in the Workplace Exposure Standard for Airborne Contaminants, Safe Work.

However, dust containing respirable crystalline silica (SiO_2) and other minerals (such as various clay / mica minerals and calcium carbonate) or amorphous silica may be generated during processing of the product. These respirable particles have exposure standard limits according to the Safe Work 'Workplace Exposure Standard for Airborne Contaminants'.

		WES/TWA
Exposure Standards:	Respirable Crystalline Silica (Quartz – 14808-60-7):	0.05mg/m³
	Respirable Crystalline Silica (Cristobalite – 14464-46-1):	0.05mg/m³
	Respirable Crystalline Silica (Tridymite – 15468-32-3):	0.05mg/m³
	Respirable Crystalline Silica (Tripoli – 1317-95-9):	0.05mg/m³
	Silica, fused (60676-86-0):	0.05mg/m³
	Respirable Amorphous Silica (Fumed silica – 7631-86-9):	2mg/m³
	Respirable Amorphous Silica (Fumed thermally generated):	2mg/m³

Abbreviations:
WES: Work Exposure Standards
TWA: Time Weighted Average - 8-hour time weighted average: the maximum average of an airborne concentration of a substance when calculated over an 8-hour working day, for a 5-day working week.

Employers should consult a qualified occupational safety and health professional (e.g. Certified Occupational Hygienist) to perform air monitoring in the workplace to determine the airborne concentrations of various contaminants.

Maintain air concentration below occupational exposure standards, using engineering controls if necessary. Use of a local exhaust ventilation, on-tool dust extraction and full-face P3 rated respirator is highly recommended for processing. Processing should also only be undertaken in a wet condition to reduce the quantity of dust released during processing.

Details in Exposure Control, Environmental/Health Monitoring and Personal Protective Measures can be found in the "Working with Silica and Silica Containing Products".

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Solid artificial stone Amorphous material, rutile and quartz (crystalline silica)	Density:	2155Kg/m^3
Solubility:	Insoluble in water	Thermal Expansion:[5]	-
Colour:	White	Flammability:	N/A
Odour:	Odourless	Viscosity:	N/A
pH:	N/A	Auto-Ignition Temp:	N/A
Melting Point:	N/A	Decomposition Temp:	N/A
Boiling Point:	N/A	Burning Rate:	N/A
Flash Point:	N/A		
Burning Time:	N/A		
Evaporation Rate:	N/A		

10. STABILITY AND REACTIVITY

Reactivity:	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical Stability:	The material is stable under normal conditions.
Hazardous Reaction:	No dangerous reaction known under conditions of normal use.
Physical Stability:	Avoid strong impacts which may cause material to break.
Conditions to Avoid:	Avoid contact with strong oxidizing agents. When heated to extremely high temperature (>860°C), quartz gradually converts to tridymite or cristobalite – forms of crystalline silica which are considered to be more hazardous than quartz.
Incompatible Materials:	Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.
Decomposition products:	Silica dissolves in hydrofluoric acid producing a corrosive gas, silicon tetrafluoride.
Acute toxicity:	No acute or chronic effects are known from the exposure to the intact product. However, dust in contact with skin and eyes may cause mechanical irritation. Temporary inhalation of dust may result acute respiratory irritation, such as discomfort in the chest, shortness of breath and coughing.
Primary routes of exposure:	None for intact product. However, dust emitted from the fabrication process may be in contact with eyes, hand, lungs or other body parts by exposure or inhalation.

[5] S. S. Kirk and D. M. Williamson (2012). STRUCTURE AND THERMAL PROPERTIES OF POROUS GEOLOGICAL MATERIALS, AIP Conference Proceedings 1426, 867.

11. TOXICOLOGICAL INFORMATION

Respiratory effects: Repeated inhalation of respirable crystalline silica (< 10μm) may cause silicosis, an incurable, progressing fibrosis (scarring) of the lungs. Silicosis increase the risk of contracting pulmonary tuberculosis, and, may cause other adverse conditions such as lung and kidney cancer (according to some studies). Safety measures including environmental measure such as proper ventilation and extraction, filtering system and wet processing. The use of effective personal protection particularly respiratory protection will also reduce the risk of dust inhalation.

Carcinogenicity: Respirable crystalline silica is classified according to the following organisation:

GHS	IARC	NTP	NIOSH	ACGIH	WHO/NIH
Carcinogen - Cat 1A	Human carcinogen (Group 1)	Definite a lung carcinogen	potential occupational carcinogen	A2 suspected human carcinogen	Known human carcinogen

Sensitization: No respiratory sensitizing effects known

Mutagenicity: No data

12. ECOLOGICAL INFORMATION

Not expected to be toxic to aquatic organisms as the product is insoluble in water. However, discharging dust and fine particles into waterways may increase the total suspended particulate (TSP) level that can be harmful to certain aquatic species.

Degradability: N/A

Bioaccumulative: N/A

Mobility in Soil: N/A

Other adverse effects: No other adverse environmental effects known caused by this product

13. DISPOSAL CONSIDERATIONS

Disposal methods	Do not allow fine particles to enter into sewers/water supplies. Do not contaminate ponds, waterways or ditches with dust. Dispose of product in accordance with local/regional/national/international regulations.
Hazardous waste code	Not regulated.
Residue/Unused products	Dispose products and residue in accordance with local regulations. Empty containers may retain product residues. All product residues and unused materials may be disposed in a safe manner.
Contaminated Packaging	Follow packaging labels. Empty packaging materials should be recycled or disposed of in accordance with appropriate regulations and practices.

14. TRANSPORTATION INFORMATION

ADG Code of Classification	None
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 is a component of this product, and is listed as carcinogenic material in GHS, IARC, NTP, NIOSH, ACGIH and WHO/NIH. Respirable crystalline silica has a workplace exposure standard of 0.05 mg/m^3 averaged over eight hours according to WHS regulations.

16. OTHER INFORMATION

Abbreviations:

WHS:	Work Health and Safety
IARC:	International Agency for Research on Cancer
NTP:	National Toxicology Program
NIOSH:	National Institute for Occupational Safety and Health
ACGIH:	American Conference of Governmental Industrial Hygienists
WHO/NIH:	World Health Organisation/National Institutes of Health
OSHA:	Occupational Safety and Health Administration, US Department of Labour
DOT:	US Department of Transportation
GHS:	Globally Harmonized System of Classification and Labelling of Chemicals

NOTICE:
We believe that the information contained on this Material 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 use circumstances can be anticipated. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, the product must not be used in a manner which could result in harm.

NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE IS MADE