SAFETY DATA SHEET

Prepared in accordance with the Globally Harmonised System (GHS) | Safe Work Australia Model WHS Regulations

PRODUCT NAME	SUPPLIER / MANUFACTURER
Non-Calcined Biogenic Amorphous Silica *(Diatomaceous Earth — Crushed, Natural, Non-Heat-Treated)*	**BSiO2 Pty Ltd** 17012 Kennedy Highway, Innot Hot Springs QLD 4872 Richard West | 0418 465 707 | bsio2.com.au ABN 74 682 041 158
SDS VERSION	**EMERGENCY CONTACT — 24 HOURS**
Version 1.0 | Issue Date: March 2026 Review Due: March 2028 or following any product change	**Poisons Information Centre: 13 11 26** Business hours: Richard West | 0418 465 707

★ **KEY REGULATORY RESULT**

Respirable Quartz Content: < 0.5% (Below Limit of Reporting)

Tested by Simtars Analytical Services — Report No. OL20396F1 — December 2025

This is the figure that matters under Australian WHS law. The respirable fraction — the dust particles small enough to reach deep into the lungs — contains less crystalline silica than the minimum detectable limit. This product does NOT meet the threshold for classification as a hazardous substance under the Safe Work Australia Workplace Exposure Standard (WES) for crystalline silica (0.05 mg/m³ TWA).

Cristobalite: Not Detected | Tridymite: Not Detected | Total Quartz (XRD, bulk): 1.8% | Amorphous Silica: 80.2%

SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND SUPPLIER

Product Name	Non-Calcined Biogenic Amorphous Silica (Diatomaceous Earth)
Synonyms / Trade Names	Diatomite, BASiO2, BSiO2, Amorphous Silica, Fossil Shell Flour, Kieselguhr, DE
Available Grades	4–8 mm | 2–4 mm | Minus 2 mm | 400 Micron — same mineral composition, different particle size classifications
CAS Number	61790-53-2 (Diatomaceous Earth, natural) / 7631-86-9 (Amorphous Silicon Dioxide)
UN Number	Not classified as Dangerous Goods for transport
Intended Use	Agricultural pest control; grain storage protectant; livestock and poultry feed additive; soil amendment; industrial spill absorbent; anti-caking agent; filtration media; pet absorbent products; green concrete supplementary cementitious material; explosive formulation anti-caking agent
Uses Advised Against	Not for use as a pharmaceutical without appropriate registration. Not to be intentionally inhaled. Avoid use in confined spaces without ventilation and respiratory protection.
Supplier	BSiO2 Pty Ltd | 17012 Kennedy Highway, Innot Hot Springs QLD 4872
Business Contact	Richard West | 0418 465 707 | bsio2.com.au | ABN 74 682 041 158
Emergency Contact	Poisons Information Centre: 13 11 26 (24 hours, 7 days)

SECTION 2: HAZARD IDENTIFICATION

NOT CLASSIFIED AS HAZARDOUS. This product does not meet the criteria for classification as a hazardous substance under Australian Work Health and Safety Regulations. It is not classified as Dangerous Goods under the Australian Dangerous Goods Code.

GHS Classification	Not classified as hazardous — based on certified laboratory results (Simtars Report OL20396F1, December 2025)
Signal Word	None required
Hazard Pictograms	None required under current classification
Hazard Statements	None required under current classification
Precautionary Statements	P260: Do not breathe dust/fume. P271: Use only outdoors or in well-ventilated areas when handling fine powder grades. P501: Dispose of contents and container in accordance with local regulations.
Respirable Quartz	< 0.5% (below limit of reporting) — Simtars OL20396F1, December 2025. THIS IS THE CONTROLLING RESULT for Australian WHS crystalline silica classification.
Cristobalite	Not detected — Agon Environmental XRD Report JH25.0028-109, October 2025
Total Quartz (bulk XRD)	1.8% — however the respirable fraction result (<0.5%) is the regulatory figure under Safe Work Australia WES for crystalline silica (0.05 mg/m³ TWA)
Key Safety Distinction	Amorphous silica is NOT the same substance as crystalline silica. This product is non-calcined — it has not been heat-treated and the amorphous structure has not been converted to crystalline form. The product contains diatom-derived amorphous + opaline silica (80.2%) as its primary component.
Physical Hazards	Non-flammable. Non-explosive. Non-oxidising. Non-corrosive.
Environmental Hazards	Not classified as environmentally hazardous. Natural mineral — biodegradable. No aquatic toxicity.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

This product is a naturally occurring mineral. It is crushed but not calcined — no heat treatment or chemical additives are applied. Mineralogy is based on XRD analysis by Agon Environmental Pty Ltd (Report JH25.0028-109, 31 October 2025).

Mineral / Component	Chemical Formula	CAS Number	Estimated wt% (XRD)
Amorphous + Opaline Silica (diatom fossils — PRIMARY COMPONENT)	$SiO_2 \cdot nH_2O$	7631-86-9	**80.2%**
Kaolinite (clay mineral)	$Al_2Si_2O_5(OH)_4$	1318-74-7	**13%**
Smectite (clay mineral)	*Silicate mineral*	1318-93-0	**5%**
Quartz — crystalline silica ★	SiO_2	14808-60-7	**1.8% (bulk XRD) — respirable fraction: <0.5%**
Cristobalite — crystalline silica	SiO_2	14464-46-1	**Not detected**

★ The respirable quartz content (<0.5%, below limit of reporting) is the controlling regulatory figure — not the bulk XRD total of 1.8%. The respirable fraction test was conducted by Simtars Analytical Services (Report OL20396F1, December 2025) using infrared spectroscopy per LP0016, the accepted Australian standard method.

SECTION 4: FIRST AID MEASURES

Inhalation	Remove person to fresh air immediately. If symptoms persist (coughing, shortness of breath), seek medical attention. Inform medical personnel that the product contains low levels of crystalline silica but that respirable quartz has been measured at <0.5% in certified testing.
Eye Contact	Flush eyes gently with clean water for at least 15 minutes, holding eyelids open. If irritation or redness persists, seek medical attention.
Skin Contact	Wash affected area thoroughly with soap and water. Fine particle sizes may cause minor mechanical abrasion. No chemical skin hazard expected. Seek attention if irritation persists.
Ingestion	Do NOT induce vomiting. Rinse mouth with water. Seek medical attention if large quantities have been swallowed. Call Poisons Information Centre 13 11 26 if in doubt.
Medical Note	This product contains amorphous silica (80.2%) and low-level crystalline silica (<0.5% respirable fraction). Chronic high-level inhalation of any silica-containing dust is not recommended. Standard dust exposure protocols apply.

SECTION 5: FIRE FIGHTING MEASURES

Flammability	NOT flammable. NOT combustible. Will not ignite under normal conditions.
Extinguishing Media	Not applicable — product will not burn. Use extinguishing agent appropriate to surrounding fire.
Hazardous Combustion	None. Product does not combust and does not produce toxic combustion products.
Special Fire Hazards	None. This product may be used as a fire suppression medium in some applications.
Protective Equipment	Standard PPE for firefighting. Dust mask if handling disturbed product during or after fire response.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions	Avoid generating dust. Wear appropriate dust mask (P1 or P2) if large quantities of fine material are released in enclosed or poorly ventilated areas. Use safety glasses.
Environmental	No significant environmental hazard. Natural mineral material. Avoid release into waterways in large quantities — may increase turbidity.
Containment & Cleanup	Sweep or vacuum up spilled material. Avoid dry sweeping of fine grades — use vacuum or damp suppression to minimise dust generation. Collect in labelled containers for reuse or disposal.
Disposal Reference	See Section 13

SECTION 7: HANDLING AND STORAGE

Handling	Avoid generating unnecessary dust, particularly with fine grades (minus 2 mm and 400 micron). Use appropriate dust suppression or ventilation. Do not eat, drink, or smoke when handling. Wash hands after handling.
Storage	Store in dry conditions, away from moisture. Bulka bags should be stored under cover to prevent saturation. No special temperature requirements. Keep away from foodstuffs unless product is being used as a registered food-grade additive.
Incompatibilities	No known incompatibilities with common industrial chemicals. Chemically inert under normal conditions.
Hygroscopic	Amorphous silica is naturally absorbent — prolonged exposure to moisture will reduce effectiveness in absorbent applications. Store dry.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

RESPIRABLE QUARTZ: Certified result <0.5% in respirable fraction (Simtars OL20396F1, December 2025). This is the figure used to assess compliance with the Safe Work Australia WES for crystalline silica of 0.05 mg/m³ (TWA) and 0.1 mg/m³ (STEL). Product does NOT trigger mandatory crystalline silica control plan requirements based on current test data.

Workplace Exposure Standard — Crystalline Silica (Quartz)	0.05 mg/m³ TWA | 0.1 mg/m³ STEL (Safe Work Australia)
Workplace Exposure Standard — Inhalable Dust (total)	10 mg/m³ TWA (Safe Work Australia)
Workplace Exposure Standard — Respirable Dust	3 mg/m³ TWA (Safe Work Australia)
Product Crystalline Silica Result	Respirable quartz: <0.5% (below LOR of 0.5%) — Simtars OL20396F1. This is the controlling regulatory result.

Recommended Personal Protective Equipment (PPE):

- Respiratory Protection: P1 or P2 dust mask/respirator when handling fine grades (minus 2 mm and 400 micron) in enclosed or poorly ventilated areas. Not required for occasional outdoor handling of coarse grades (4–8 mm, 2–4 mm) based on current test data.
- Eye Protection: Safety glasses or goggles when handling fine grades or in dusty conditions.
- Skin Protection: Work gloves recommended for prolonged handling. No chemical skin hazard — mechanical abrasion only.
- Clothing: Standard work clothing. Wash contaminated clothing before reuse.

Ventilation	Ensure adequate ventilation when handling fine grades indoors. Local exhaust ventilation (LEV) recommended for high-volume indoor processing operations.
Hygiene Measures	Do not eat, drink, or smoke during handling. Wash hands and face after handling. Change and launder contaminated clothing.
Engineering Controls	Enclose or ventilate material transfer points when handling 400 micron or minus 2 mm grades in bulk indoor operations.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Off-white to pale cream/beige granular or powdery mineral. Colour varies slightly depending on deposit zone.
Odour	Odourless
Physical State	Solid (granular / powder depending on grade)
Particle Size — D10	4.34 µm (10% of particles finer than this value)
Particle Size — D50	156 µm (median particle size — 50% finer)
Particle Size — D90	511 µm (90% of particles finer than this value)
Specific Surface Area	494.4 m²/kg (Malvern Mastersizer 3000+, HRL Technology Report 251493, December 2025)
Size Distribution Span	3.256 (broad natural distribution — reflects run-of-mine crushed material)
D[3,2] Surface Mean	12.1 µm
D[4,3] Volume Mean	205 µm
Bulk Density	Approximately 200–350 kg/m³ (varies by grade and moisture content)
Specific Gravity	Approximately 1.9–2.1 (particle density)
Solubility in Water	Insoluble. Amorphous silica is chemically inert in water.
pH (aqueous suspension)	Approximately 6–8 (neutral to slightly alkaline)
Melting Point	Does not melt under normal conditions. Softening above 1600°C.
Flammability	Not flammable
Explosive Properties	Not explosive
Oxidising Properties	Not oxidising
Moisture Content	Variable — typically 2–8% depending on storage conditions. Amorphous silica is naturally hygroscopic.
Amorphous Silica Content	80.2% (XRD — Agon Environmental JH25.0028-109)
Crystalline Silica (Quartz, bulk XRD)	1.8% total | <0.5% in respirable fraction (Simtars OL20396F1) — controlling regulatory result
Cristobalite	Not detected (Agon Environmental XRD)

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability	Stable under normal conditions of temperature, pressure, and storage.
Reactivity	No known hazardous reactions under normal conditions.
Conditions to Avoid	Extreme heat above 1000°C may cause sintering. Calcination above 1000°C will convert amorphous silica to crystalline silica — BSiO2 product is never subjected to this process.
Incompatible Materials	Hydrofluoric acid (HF) will dissolve silica. Strong alkalis at elevated temperatures. No other significant incompatibilities under normal industrial and agricultural use.
Hazardous Decomposition	None under normal conditions.
Hazardous Polymerisation	Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

CRITICAL DISTINCTION: Amorphous silica (the primary component of this product at 80.2%) has a significantly different toxicological profile from crystalline silica. The health concerns associated with crystalline silica (silicosis) relate specifically to crystalline forms — primarily quartz and cristobalite. The respirable crystalline silica (quartz) in this product has been certified at <0.5% (below limit of reporting) by Simtars Analytical Services.

Acute Toxicity (oral)	Not classified as acutely toxic. Amorphous silica is approved for use as a food additive (anti-caking agent) and animal feed additive in Australia.
Acute Toxicity (inhal.)	Not classified as acutely toxic by inhalation based on composition and test data.
Skin / Eye Irritation	May cause mechanical irritation. Not classified as a chemical irritant or sensitiser.
Respiratory Sensitisation	Not classified as a respiratory sensitiser.
Carcinogenicity	Crystalline silica (quartz) — IARC Group 1 carcinogen when inhaled from occupational sources. HOWEVER: the respirable crystalline silica fraction of this product is <0.5% (below reporting limit). Amorphous silica is classified as IARC Group 3 (not classifiable as to carcinogenicity).
Chronic Effects (dust)	Prolonged, repeated, high-level inhalation of any mineral dust is not recommended. Normal industrial dust control measures are sufficient based on current test data for this product.
Silicosis Risk	Risk is associated with crystalline silica (quartz) — not amorphous silica. Cristobalite not detected. Respirable quartz <0.5%. Risk is NOT triggered at current measured levels.
Ecological / Aquatic	Not classified as ecotoxic. Natural mineral material. No bioaccumulation concern.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Not classified as ecotoxic. Diatomaceous earth is a naturally occurring mineral with no aquatic toxicity at normal concentrations.
Persistence	Persistent mineral — does not biodegrade in the chemical sense, but is a natural component of soils and sediments.
Bioaccumulation	Not expected to bioaccumulate.
Mobility in Soil	Fine particles may be mobile in water runoff. Coarse grades will remain largely in place.
Environmental Reg'ns	No specific environmental regulatory requirements for this product under Australian law.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Classification	Not classified as hazardous waste under Australian environmental regulations based on current composition data.

Disposal Method	Dispose of in accordance with local council and state environmental regulations. Small quantities may be disposed of in general waste. Large quantities should be considered for recycling or reuse — spent DE from filtration or absorbent applications may be suitable for soil amendment.
Bulka Bag Disposal	Empty bulka bags should be inspected for residual product before disposal. Follow local recycling guidelines for FIBC (Flexible Intermediate Bulk Container) bags.
Sewerage/Waterways	Do not dispose of large quantities directly into waterways or sewers without appropriate approval.

SECTION 14: TRANSPORT INFORMATION

UN Number	Not assigned — product is NOT classified as Dangerous Goods
Proper Shipping Name	Diatomaceous Earth / Amorphous Silica — Not Dangerous Goods
Dangerous Goods Class	Not classified as Dangerous Goods under the Australian Dangerous Goods Code (ADG)
Packing Group	Not applicable
Hazchem Code	Not applicable
Marine Pollutant	Not classified as a marine pollutant
Transport Packaging	Supplied in 1 tonne FIBC bulka bags. Standard freight handling applies.
Special Precautions	Keep dry during transport. Protect from moisture ingress. Ensure bags are intact and sealed before transport.

SECTION 15: REGULATORY INFORMATION

Australian WHS Regs	This product does not meet the criteria for classification as a hazardous chemical under the Australian Model Work Health and Safety Regulations based on certified laboratory analysis.
Crystalline Silica WES	Safe Work Australia WES for respirable crystalline silica: 0.05 mg/m³ (TWA). Respirable quartz in this product: <0.5% (below LOR) — Simtars OL20396F1, December 2025.
AICIS / NICNAS	Diatomaceous earth is an existing industrial chemical listed on the Australian Inventory of Industrial Chemicals (AICIS).
SUSMP	Not listed as a controlled substance under the Standard for the Uniform Scheduling of Medicines and Poisons.
Food Grade Applications	For use as a food additive or animal feed additive: relevant APVMA registration or FSANZ approval must be held by the end user or product formulator. Consult BSiO2 Pty Ltd for grade suitability.
State Regulations	Product extraction and supply complies with Queensland mining and environmental legislation.
Certifying Laboratories	Simtars Analytical Services (RSHQ) — Redbank QLD | Agon Environmental Pty Ltd — Fullarton SA | HRL Technology Group Pty Ltd — Mulgrave VIC

SECTION 16: OTHER INFORMATION

Prepared by	BSiO2 Pty Ltd | Richard West | 0418 465 707 | bsio2.com.au
Issue Date	March 2026
Review Date	March 2028 (or following any material change to product composition, source, or processing)
Supersedes	All previous versions
Laboratory References	Simtars Report OL20396F1 (December 2025) — Respirable Quartz Analysis | Agon Environmental Report JH25.0028-109 (October 2025) — XRD Mineralogy | HRL Technology Report 251493 (December 2025) — Laser Particle Size Distribution
Key Finding Summary	Respirable quartz <0.5% (below LOR). Cristobalite not detected. Amorphous silica 80.2%. Product NOT classified as hazardous under Australian WHS regulations.

DISCLAIMER: The information in this Safety Data Sheet is based on the best information available at the time of preparation and on certified independent laboratory testing. It is provided in good faith and is believed to be accurate. BSiO2 Pty Ltd accepts no liability for any loss, injury, or damage resulting from use of this information without independent verification. Users should satisfy themselves that the product is suitable for their intended use and that all applicable regulatory requirements are met.

This SDS has been prepared with reference to: Safe Work Australia Code of Practice for Preparation of Safety Data Sheets for Hazardous Chemicals (2020); the Globally Harmonised System of Classification and Labelling of Chemicals (GHS, 7th Revised Edition); and certified laboratory analyses by Simtars, Agon Environmental, and HRL Technology Group.