SAFETY DATA SHEET

1. Identification

Product identifier **VOLCLAY® SG**

Other means of identification

Synonyms Smectite * Bentonite * Bentonite, Sodian * Bentonite, Calcian * Sodium-activated Bentonite * Montmorillonite

CAS number 1302-78-9

Recommended use of the chemical and restrictions on use

Recommended use Bentonite has a variety of uses. It can be used as a rheology modifier, binding agent, adsorbent, hydraulic-barrier, and filler.

Restrictions on use Workers (and your customers or users in the case of resale) should be informed of the potential presence of respirable dust and respirable crystalline silica as well as their potential hazards. Appropriate training in the proper use and handling of this material should be provided as required under applicable regulations.

Details of manufacturer or importer

Manufacturer

Company name AMCOL Australia Pty Ltd.
Address 94 Balham Road
Archerfield
Brisbane, Queensland 4108
Australia
Telephone General Information +61 (0) 7 3719 3500
Website http://www.amcolminerals.com.au/
E-mail safetydata@mineralstech.com

Emergency phone number .

Asia Pacific 1 760 476 3960

Australia 61 1 800 686 951

2. Hazard(s) identification

Classification of the hazardous chemical

Physical hazards Not classified.

Health hazards Not classified.

Label elements, including precautionary statements

Hazard symbol(s) None.

Signal word None.

Hazard statement(s) The substance does not meet the criteria for classification.

Precautionary statement(s)

Prevention Keep out of reach of children. Read label before use.

Response If medical advice is needed, have product container or label at hand.

Storage Store away from incompatible materials.

Disposal Dispose of waste and residues in accordance with local authority requirements.

Supplemental information None.

Other hazards which do not result in classification None known.

3. Composition/information on ingredients

Substance

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
BENTONITE	1302-78-9	100
Smectite Bentonite Bentonite, Sodian Bentonite, Calcian Sodium-activated Bentonite Montmorillonite		

Constituents

Identity of chemical ingredients	CAS number and other unique identifiers	Concentration of ingredients
Quartz	14808-60-7	<= 6
Crystalline silica, quartz SILICA (QUARTZ)		
Cristobalite	14464-46-1	<= 2

Bentonite is a UVCB substance sub-type 4. The purity of the product is 100 % w/w. Bentonite is composed mainly of smectite group minerals but the composition is varied, as expected for a UVCB substance, and other mineral constituents will be present in small and varying amounts. These minor constituents are not relevant for classification and labelling.

Composition comments Bentonite contains naturally occurring crystalline silica (not listed in Annex I of Directive 67/548/EEC) in quantities less than 6%. Occupational Exposure Limits for constituents are listed in Section 8. The purity of the product is 100% w/w. Impurities are not applicable for a UVCB substance. This product contains less than 1% w/w RCS (respirable crystalline silica) as determined by the SWERF method. The respirable crystalline silica content can be measured using the SWERF method.

4. First-aid measures

Description of necessary first aid measures

Inhalation If dust from the material is inhaled, remove the affected person immediately to fresh air. Call a physician if symptoms develop or persist. No specific first aid measures noted.

Skin contact Get medical attention if irritation develops and persists. No specific first aid measures noted. Wash skin with soap and water.

Eye contact No specific first aid measures noted. Do not rub eyes. Rinse with water. Get medical attention if irritation develops and persists. Flush thoroughly with water. If irritation occurs, get medical assistance.

Ingestion No specific first aid measures noted. Rinse mouth thoroughly. Get medical attention if any discomfort occurs.

Personal protection for first-aid responders No hazards which require special first aid measures. Provide general supportive measures and treat symptomatically.

Symptoms caused by exposure Dust in the eyes will cause irritation. Dusts may irritate the respiratory tract, skin and eyes.

Medical attention and special treatment Provide general supportive measures and treat symptomatically.

5. Fire-fighting measures

Extinguishing media

Suitable extinguishing equipment Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Use any media suitable for the surrounding fires.

Unsuitable extinguishing equipment Not applicable, non-combustible.

Specific hazards arising from the chemical The product itself does not burn.

Special protective equipment and precautions for firefighters Material can be slippery when wet.

Fire fighting equipment/instructions In the event of fire, cool tanks with water spray.

Hazchem code None.

General fire hazards No unusual fire or explosion hazards noted. This material will not burn.

Specific methods Cool containers exposed to flames with water until well after the fire is out.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	No special precautions are necessary beyond normal good hygiene practices. See Section 8 for additional personal protection advice when handling this product.
For emergency responders	Avoid inhalation of dust. Wear a dust mask if dust is generated above exposure limits. Avoid generation and spreading of dust.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.
Methods and materials for containment and cleaning up	Avoid the generation of dusts during clean-up. Collect dust using a vacuum cleaner equipped with HEPA filter. Stop the flow of material, if this is without risk. Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Following product recovery, flush area with water. Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. For waste disposal, see section 13 of the SDS.

7. Handling and storage

Precautions for safe handling	Minimise dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Avoid contact with skin and eyes. Avoid breathing dust. In case of insufficient ventilation, wear suitable respiratory equipment. Practice good housekeeping.
Conditions for safe storage, including any incompatibilities	No special restrictions on storage with other products. Store in a dry area. Keep the container dry. Store in tightly closed container. Store in a well-ventilated place. Keep out of the reach of children. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls and personal protection

Control parameters Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Follow standard monitoring procedures.

Occupational exposure limits

Australia. National Workplace OELs (Workplace Exposure Standards for Airborne Contaminants, Appendix A)

Constituents	Type	Value	Form
INERT OR NUISANCE DUSTS (CAS SEQ250)	TWA	10 mg/m3	Inhalable dust.
Cristobalite (CAS 14464-46-1)	TWA	0.05 mg/m3	Respirable dust.
Quartz (CAS 14808-60-7)	TWA	0.05 mg/m3	Respirable dust.

US. ACGIH Threshold Limit Values (TLV)

Constituents	Type	Value	Form
Cristobalite (CAS 14464-46-1)	TWA	0.025 mg/m3	Respirable fraction.
Quartz (CAS 14808-60-7)	TWA	0.025 mg/m3	Respirable fraction.

UK. OELs. Workplace Exposure Limits (WELs) (EH40/2005 (Fourth Edition 2020)), Table 1

Constituents	Type	Value	Form
INERT OR NUISANCE DUSTS (CAS SEQ250)	TWA	4 mg/m3	Respirable dust.
		10 mg/m3	Inhalable dust.
Cristobalite (CAS 14464-46-1)	TWA	0.1 mg/m3	Respirable.
Quartz (CAS 14808-60-7)	TWA	0.1 mg/m3	Respirable.

Germany. DFG MAK List (advisory OELs). Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (DFG), as updated

Constituents	Type	Value	Form
INERT OR NUISANCE DUSTS (CAS SEQ250)	TWA	4 mg/m3	Inhalable dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Control banding Not available.

Engineering controls	If these are not sufficient to maintain concentrations of particulates and solvent vapour below the OEL, suitable respiratory protection must be worn. Ventilation should be sufficient to effectively remove and prevent buildup of any dusts or fumes that may be generated during handling or thermal processing.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection	Applicable for industrial settings only. Wear safety glasses with side shields (or goggles). Wear dust-resistant safety goggles where there is danger of eye contact.
Skin protection	
Hand protection	Applicable for industrial settings only. Wear appropriate chemical resistant gloves. No protection is ordinarily required under normal conditions of use.
Other	Applicable for industrial settings only. Normal work clothing (long sleeved shirts and long pants) is recommended.
Respiratory protection	Applicable for industrial settings only. Wear respirator with dust filter.
Thermal hazards	Not applicable.
Hygiene measures	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Use good industrial hygiene practices in handling this material.

9. Physical and chemical properties

Physical state	Solid.
Form	Various.
Colour	Various.
Odour	None.
Odour threshold	Not applicable.
pH	> 8.5 - < 11
Melting point/freezing point	>450 °C (>842 °F) / Not applicable.
Boiling point and boiling range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not available.
Flammability (solid, gas)	This product is not flammable.
Upper/lower explosive limits	
Explosion limit - lower (%)	Not applicable.
Explosion limit - upper (%)	Not applicable.
Vapour pressure	Not applicable.
Vapour density	Not applicable.
Relative density	2.6 g/cm³
Solubility	
Solubility (water)	<0.9 mg/l
Partition coefficient: n-octanol/water	Not applicable. Not applicable.
Auto-ignition temperature	Not applicable.
Decomposition temperature	>500 °C (>932 °F)
Viscosity	Not applicable.
Viscosity temperature	Not applicable.
Particle characteristics	Not available.
Data relevant with regard to physical hazard classes	No relevant additional information available.

Other physical and chemical parameters

Bulk density	> 0.9 - < 1.4 g/cm³
Explosive limit	Not applicable.
Explosive properties	Not explosive. Not explosive
Explosivity	Not applicable.
Flame extension	Not applicable.

Flammability	Not applicable.
Flammability (flash back)	Not applicable.
Flammability (Heat of combustion)	Not applicable.
Flammability (Train fire)	Not applicable.
Flash point class	Not flammable
Molecular formula	UVCB Substance
Molecular weight	Not applicable.
Oxidising properties	Not oxidising. None.
Percent volatile	0 %
pH in aqueous solution	> 8.5 - < 11
Specific gravity	Not applicable.
VOC	0 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	Will not occur.
Conditions to avoid	Moisture. Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air).
Incompatible materials	None known.
Hazardous decomposition products	None.

11. Toxicological information

Information on possible routes of exposure

Inhalation	Dust may irritate respiratory system.
Skin contact	Dust or powder may irritate the skin.
Eye contact	Dust in the eyes will cause irritation.
Ingestion	Not classified.
Early onset symptoms related to exposure	Dusts may irritate the respiratory tract, skin and eyes. None known.
Delayed health effects from exposure	Not available.
Acute toxicity	Not classified. Not known.

Product	**Species**	**Test Results**
VOLCLAY® SG (CAS 1302-78-9)		
Acute		
Inhalation		
Dust		
LC50	Rat	> 5.27 mg/l, 4 hr OECD 436
Oral		
Dust		
LD50	Rat	> 2000 mg/kg OECD 425

Constituents	**Species**	**Test Results**
Quartz (CAS 14808-60-7)		
Acute		
Oral		
LD50	Rat	500 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Not classified.

Serious eye damage/irritation Dust in the eyes will cause irritation. Mild irritant to eyes (according to the modified Kay & Calandra criteria)

Respiratory or skin sensitisation

Respiratory sensitisation Not classified.

Skin sensitisation Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore, preventing the onset of silicosis will also reduce the cancer risk..." (SCOEL SUM Doc 94-final, June 2003) According to the current state of the art, worker protection against silicosis can be consistently assured by respecting the existing regulatory occupational exposure limits. Occupational exposure to respirable dust and respirable crystalline silica should be monitored and controlled. No carcinogenicity data available for this product. Sepiolite was evaluated by IARC as class 3 ("Cannot be classified as to carcinogenicity to humans"). Based on read-across with sepiolite, bentonite was assessed as non-carcinogenic. Therefore classification of bentonite for carcinogenicity is not warranted.

ACGIH Carcinogens

Cristobalite (CAS 14464-46-1)	A2 Suspected human carcinogen.
Quartz (CAS 14808-60-7)	A2 Suspected human carcinogen.

IARC Monographs. Overall Evaluation of Carcinogenicity

Cristobalite (CAS 14464-46-1)	1 Carcinogenic to humans.
Quartz (CAS 14808-60-7)	1 Carcinogenic to humans.

Reproductive toxicity Not classified.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
BENTONITE (CAS 1302-78-9)			
Aquatic			
Algae	EC50	Freshwater algae	> 100 mg/l, 72 hours
Crustacea	EC50	Coon stripe shrimp (Pandalus danae)	24.8 mg/l, 96 hours
		Daphnia	> 100 mg/l, 48 hours
		Dungeness or edible crab (Cancer magister)	81.6 mg/l, 96 hours
Fish	LC50	Freshwater fish	16000 mg/l, 96 hours
		Marine water fish	> 2800 - < 3200 mg/l, 24 hours
Acute			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	19000 mg/l, 96 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability Not relevant for inorganic substances

Bioaccumulative potential Will not bio-accumulate.

Partition coefficient n-octanol / water (log Kow) Not applicable.

Mobility in soil Low water solubility, expected to sink and migrate into the sediment. Expected to partition to sediment and wastewater solids.

Mobility in general The product has poor water-solubility.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal methods Collect and reclaim or dispose in sealed containers at licensed waste disposal site.

Residual waste Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal. Store containers and offer for recycling of material when in accordance with the local regulations.

14. Transport information

ADG

Not regulated as dangerous goods.

RID

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

Safety, health and environmental regulations

National regulations This Safety Data Sheet was prepared in accordance with Australia Model Code of Practice for the preparation of Safety Data Sheets for Hazardous Chemicals.

Australia Medicines & Poisons Appendix B

BENTONITE (CAS 1302-78-9)

High Volume Industrial Chemicals (HVIC)

BENTONITE (CAS 1302-78-9)	1000 - 9999 TONNES See the regulation for additional information.
Cristobalite (CAS 14464-46-1)	10000 - 99999 TONNES See the regulation for additional information.
Quartz (CAS 14808-60-7)	100000 - 999999 TONNES See the regulation for additional information.

Importation of Ozone Depleting Substances (Customs(Prohibited imports) Regulations 1956, Schedule 10, as amended)

Not listed.

National Pollutant Inventory (NPI) substance reporting list

Cristobalite (CAS 14464-46-1)	2000 tonnes/yr Threshold Category: 2B 400 tonnes/yr Threshold Category: 2A

Prohibited Carcinogenic Substances

Not regulated.

Prohibited Substances (National Model Regulation for the control of Workplace Hazardous Substances, Schedule 2 NOHSC:1005 (1994) as amended)

Not listed.

Restricted Carcinogenic Substances

Not regulated.

Restricted Importation of Organochlorine Chemicals (Customs(Prohibited Imports) Regulations 1956, Schedule 9)

Not listed.

International regulations

Stockholm Convention

Not applicable.

Rotterdam Convention

Not applicable.

Kyoto Protocol

Not applicable.

Montreal Protocol

Not applicable.

Basel Convention

Not applicable.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Industrial Chemicals (AICIS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information

Issue date 09-November-2015

Revision date 15-May-2023

Further information This safety datasheet only contains information relating to safety and does not replace any product information or product specification.

Key abbreviations or acronyms used SWERF = Size-Weighted Relevant Fine Fraction methodology is a scientific method developed to quantify the content of respirable particles within a bulk product. All details about the SWERF method are available at www.crystallinesilica.eu.
UVCB = a substance of Unknown or Variable composition, Complex reaction products or Biological materials

References For any information on literature references or toxicity/ecotoxicity studies, please contact the supplier.

Disclaimer AMCOL Australia Pty Ltd. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available. The information provided in this Safety Data Sheet 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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The manufacturer expressly does not make any representations, warranties, or guarantees as to its accuracy, reliability or completeness nor assumes any liability, for its use. It is the user's responsibility to verify the suitability and completeness of such information for each particular use. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Revision information Product and Company Identification: Product and Company Identification
Hazard(s) identification: Supplemental information
Physical and chemical properties: Form