

MINERALTECH

Safety Data Sheet

SECTION 1 – PRODUCT IDENTIFICATION & USE:

MineralTech – MineralTech SL

CHEMICAL NAME AND SYNONYMS: $(\text{Fe, Mg})_2\text{A}_{19}\text{Si}_4\text{O}_{23}(\text{OH})$. FeTiO_3 , $\text{Fe}_2\text{Ti}_3\text{O}_9$, TiO_2 ZrSiO_4 (Staurolite)

MANUFACTURER AND SUPPLIER:

MineralTech, LLC
P.O. Box 1027
Highlands, TX 77562
Tel: 281-462-4220

MATERIAL IDENTIFICATION AND USE

This material is a dark reddish brown, granular aggregate for use as a blasting media. This product contains less than 1% free crystalline silica. Note: This MSDS covers many products and individual physical and chemical properties will vary. Consult individual Technical Data Sheet's for specifics.

SECTION 2 – COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms Staurolite

Chemical Name	CAS No.	Weight-%
Titanium(IV) Oxide	13463-67-7	5-15
Zirconium silicate	14940-68-2	1-2
Aluminum silicate	1302-76-7	0-2
Quartz	14808-60-7	0.1-1

If Chemical Name/CAS No is "proprietary" and/or Weight-% is listed as a range, the specific chemical identity and/or percentage of composition has been withheld as a trade secret.

SECTION 3 – HAZARDOUS IDENTIFICATION

Physical state Solid

Odor Odorless

Appearance Dry, dark brown grains

Classification

Carcinogenicity Category 1A

Signal Word

Danger

Hazard statements

May cause cancer



Precautionary Statements - Prevention

Obtain special instructions before use
Do not handle until all safety precautions have been read and understood
Use personal protective equipment as required

Precautionary Statements - Response

If exposed or concerned: Get medical advice/attention

Precautionary Statements - Storage

Store locked up

Precautionary Statements - Disposal

Dispose of contents/container to an approved waste disposal plant

SECTION 4 – FIRST AID MEASURES

First Aid Measures

Provide this SDS to medical personnel for treatment.

Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Do not rub eyes. If eye irritation persists: Get medical advice/attention.

Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation occurs: Get medical advice/attention.

Remove exposed individual(s) to fresh air for 20 minutes. Consult a physician / poison center if individual's condition declines or if symptoms persist. Blow nose to remove particulates from nasal passages.

Rinse mouth. Do not induce vomiting without medical advice. If conscious give 2 glasses of water to dilute. Get medical attention.

Most important symptoms and effects

Can be irritating if inhaled at high concentration. May cause symptoms such as coughing or sneezing.

Indication of any immediate medical attention and special treatment needed

SECTION 5 – FIRE FIGHTING MEASURES

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media Not determined.

Specific Hazards Arising from the Chemical

Product is not flammable or combustible.

Protective equipment and precautions for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

SECTION 6-ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions Wear protective clothing as described in Section 8 of this safety data sheet.

Environmental precautions

Environmental precautions Prevent from entering into soil, ditches, sewers, waterways and/or groundwater. See Section 12, Ecological Information.

Methods and material for containment and cleaning up

Methods for Containment Prevent further leakage or spillage if safe to do so.

Methods for Clean-Up Vacuum up if possible, otherwise sweep up and re-cycle. If the spilled product is not suitable for re-use, damp down, collect and where possible return to manufacturer for reprocessing. Otherwise dispose of to an approved landfill site and cover with clean fill in accordance with Federal, Provincial, State and Local regulations. For waste disposal, see section 13 of the SDS.

SECTION 7-STORAGE AND HANDLING

Precautions for safe handling

Advice on Safe Handling Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Use personal protective equipment as required. Avoid breathing dusts. Wear protective gloves/protective clothing. Wash face, hands and any exposed skin thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a cool, well-ventilated place. Store locked up.

Incompatible Materials Strong oxidizing agents.

SECTION 8-EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Titanium(IV) Oxide 13463-67-7	TWA: 10 mg/m ³	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ total dust	IDLH: 5000 mg/m ³
Aluminum silicate 1302-76-7	TWA: 1 mg/m ³ respirable particulate matter	-	-
Zirconium silicate 14940-68-2	STEL: 10 mg/m ³ Zr TWA: 5 mg/m ³ Zr	TWA: 5 mg/m ³ Zr (vacated) TWA: 5 mg/m ³ Zr (vacated) STEL: 10 mg/m ³ Zr	IDLH: 25 mg/m ³ Zr TWA: 5 mg/m ³ except Zirconium tetrachloride Zr STEL: 10 mg/m ³ Zr
Quartz 14808-60-7	TWA: 0.025 mg/m ³ respirable particulate matter	(vacated) TWA: 0.1 mg/m ³ respirable dust : (30)/(%SiO ₂ + 2) mg/m ³ TWA total dust : (250)/(%SiO ₂ + 5) mppcf TWA respirable fraction : (10)/(%SiO ₂ + 2) mg/m ³ TWA respirable fraction	IDLH: 50 mg/m ³ respirable dust TWA: 0.05 mg/m ³ respirable dust

Other Information As shipped from the manufacturer, the grain size of the product is outside the respirable range (>10um diameter) and precludes it from being an inhalation hazard. Handling and processing can however fracture grains, and in the dry state this can generate dust.

Appropriate engineering controls

Engineering Controls Apply technical measures to comply with the occupational exposure limits. Ensure that eyewash stations and safety showers are close to the workstation location. Ventilation requirements will depend on handling methods and the amount in use, but should be sufficient to maintain dust levels below exposure limits. Points of dust generation, such as a conveyor and hopper discharges should be equipped with an effective extraction system. If using Stauroilite concentrate for sand blasting, use in a blasting chamber with mechanical extraction ventilation that meets OSHA 29 CFR part 1910.94. Where sand blasting occurs outside of chamber, minimize dust contamination of surroundings and maintain dust levels below the recommended exposure standards.

Individual protection measures, such as personal protective equipment

Eye/Face Protection Wear safety glasses with side shields (or goggles). Refer to 29 CFR 1910.133 for eye and face protection regulations.

Skin and Body Protection Wear impervious protective clothing, including boots, gloves, lab coat, apron or coveralls, as appropriate, to prevent skin contact. Refer to 29 CFR 1910.138 for appropriate skin and body protection.

Respiratory Protection If necessary, wear a MSHA/NIOSH-approved respirator. When sand blasting, use a type CE abrasive blast supplied air respirator covering head, neck and shoulders as per CFR 1910.94 (a) (5). Refer to 29 CFR 1910.134 for respiratory protection requirements.

General Hygiene Considerations Handle in accordance with good industrial hygiene and safety practice.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical State	Solid	Odor	Odorless
Appearance	Dry, dark brown grains	Odor Threshold	Not determined
Color	Dark brown		

<u>Property</u>	<u>Values</u>	<u>Remarks • Method</u>
pH	N/A	
Melting Point/Freezing Point	1380 °C / 2516 °F	
Boiling Point/Boiling Range	Not determined	
Flash Point	Not determined	
Evaporation Rate	Not determined	
Flammability (Solid, Gas)	Not determined	
Flammability Limits in Air		
Upper Flammability Limits	Not determined	
Lower Flammability Limit	Not determined	
Vapor Pressure	Not volatile	
Vapor Density	Not determined	
Relative Density	3.7-3.8	
Water Solubility	Insoluble	
Solubility in other solvents	Not determined	
Partition Coefficient	Not determined	
Auto-ignition Temperature	Not self-igniting	
Decomposition Temperature	Not determined	
Kinematic Viscosity	Not determined	
Dynamic Viscosity	Not determined	
Not determined		
Not determined		

Other Information

Molecular Weight	1279.87
Bulk Density	1980-2040 kg/m ³

SECTION 10- STABILITY AND REACTIVITY

Reactivity

Not reactive under normal conditions.

Chemical Stability

Stable under recommended storage conditions.

Possibility of Hazardous Reactions

None under normal processing.

Conditions to Avoid

Keep out of reach of children. Dust formation.

Incompatible Materials

Strong oxidizing agents.

Hazardous Decomposition Products

None known based on information supplied.

SECTION 11- TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Eye Contact	May cause mechanical eye irritation.
Skin Contact	Avoid contact with skin and clothing.
Inhalation	May cause irritation to the mucous membranes and upper respiratory tract.
Ingestion	Do not taste or swallow.

Component Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Titanium(IV) Oxide 13463-67-7	> 10000 mg/kg (Rat)	-	-
Quartz 14808-60-7	= 500 mg/kg (Rat)	-	-

Information on physical, chemical and toxicological effects

Symptoms	Please see section 4 of this SDS for symptoms.
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Carcinogenicity	May cause cancer.
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Chemical Name	ACGIH	IARC	NTP	OSHA
Titanium(IV) Oxide 13463-67-7		Group 2B		X
Quartz 14808-60-7	A2	Group 1	Known	X

Legend

ACGIH (American Conference of Governmental Industrial Hygienists)

A2 - Suspected Human Carcinogen

IARC (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 2B - Possibly Carcinogenic to Humans

NTP (National Toxicology Program)

Known - Known Carcinogen

OSHA (Occupational Safety and Health Administration of the US Department of Labor)

X - Present

Other Adverse Effects

As is common with many minerals, Staurolite Concentrate contains very low levels (below 0.05% by weight) of naturally occurring radioactive elements of the uranium and thorium series. Internal exposure via inhaled dust is the main exposure. Close proximity to large quantities (bulk or stockpiles) of Staurolite concentrate over long periods (2000 hours per year) may result in direct exposure. This Staurolite concentrate is exempt from the NRC regulations for source material per 10 CFR40 because it is below the 0.05% uranium and thorium.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicity

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Persistence/Degradability

Not determined.

Bioaccumulation

Not determined.

Mobility

Not determined

Other Adverse Effects

Not determined

SECTION 13 – DISPOSAL CONSIDERATIONS

Waste Treatment Methods**Disposal of Wastes**

Disposal should be in accordance with applicable regional, national and local laws and regulations. If approved, may be transferred to an approved landfill site. NOTE: many states are developing new regulations for disposal of waste containing Natural Occurring Radioactive Materials (NORM) above background levels. Consult and comply with current regulations.

Contaminated Packaging

Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14 – TRANSPORT INFORMATION

Note

Please see current shipping paper for most up to date shipping information, including exemptions and special circumstances.

DOT

Not regulated

IATA

Not regulated

IMDG

Not regulated

SECTION 15 – REGULATORY INFORMATION

International Inventories

Chemical Name	TSCA	DSL/NDSL	EINECS/E LINCS	ENCS	IECSC	KECL	PICCS	AICS
Staurolite					X		X	
Titanium(IV) Oxide	X	X	X	Present	X	Present	X	X
Zirconium silicate	X	X	X	Present	X	Present	X	X
Aluminum silicate		X	X		X	Present		X
Quartz	X	X	X	Present	X	Present	X	X

Legend:

- TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory
- DSL/NDSL** - Canadian Domestic Substances List/Non-Domestic Substances List
- EINECS/ELINCS** - European Inventory of Existing Chemical Substances/European List of Notified Chemical Substances
- ENCS** - Japan Existing and New Chemical Substances
- IECSC** - China Inventory of Existing Chemical Substances
- KECL** - Korean Existing and Evaluated Chemical Substances
- PICCS** - Philippines Inventory of Chemicals and Chemical Substances
- AICS** - Australian Inventory of Chemical Substances

US Federal Regulations

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

SARA 311/312 Hazard Categories

Acute Health Hazard	No
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42)

US State Regulations

California Proposition 65

This product contains the following Proposition 65 chemicals.

Chemical Name	California Proposition 65
Titanium(IV) Oxide - 13463-67-7	Carcinogen
Quartz - 14808-60-7	Carcinogen

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania
Titanium(IV) Oxide 13463-67-7	X	X	X
Quartz 14808-60-7	X	X	X

SECTION 16 – OTHER INFORMATION

<u>NFPA</u>	Health Hazards	Flammability	Instability	Special Hazards
	Not determined	Not determined	Not determined	Not determined

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Disclaimer

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 guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. 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.