

# MATERIAL SAFETY DATA SHEET

MATERIAL SAFETY DATA SHEET - Complies with ANSI Z400.1 Draft Standard for the Preparation of Material Safety Data Sheets, Copyright 1991, Chemical Manufacturers Association. May be used to comply with U.S. Department of Labor OSHA's Hazard Communication Standard, 29 CFR 1910.1200. Standards must be consulted for specific requirements.

Date : 05/27/2003

## DuPont Staurolite Products Starblast Ultra Blasting Abrasive

### 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Staurolite Sands, Starblast, Starblast XL, Starblast Ultra

CHEMICAL NAME: Mineral sand mixture, primarily ferrous aluminum silicate

COMPANY IDENTIFICATION

DuPont Titanium Technologies  
1007 Market Street  
Wilmington, DE 19898

EMERGENCY / TECHNICAL NUMBERS

(800) 441-3637 (or 302-774-1000 outside the US)

CHEMTREC:

(800) 424-9300 (or 703-527-3887 outside the US)

PRODUCT INFORMATION: MSDS Requests and Product Information: (800) 441-9485 (or 302-774-1000 outside the US), corporate MSDS #DU002808

### 2. COMPOSITION / INFORMATION INGREDIENTS

<u>COMPONENTS</u>	<u>CAS No.</u>	<u>OSHA Exposure Limits (PEL)</u>	<u>ACGIH Recommended Limits (TLV)</u>	<u>Percent by Weight</u>
Staurolite, respirable dust	12182-56-8	5 mg/m <sup>3</sup>	N/A	85.0
Titanium Minerals	N/A	N/A	N/A	7.0
Quartz, respirable dust	14808-60-7	10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> + 2) <sup>†</sup>	0.05 mg/m <sup>3</sup> *	<5.0
Zircon	14940-68-2	5 mg/m <sup>3</sup> *	5 mg/m <sup>3</sup> *	3.0
Kyanite	1302-76-7	N/A	N/A	2.0
† Total dust: 30 mg/m <sup>3</sup> / (%SiO <sub>2</sub> + 2)			*as 8 hour TWA's	

COMPOSITION COMMENTS:

For more information on quartz, see also: Christobalite [CAS No. 14464-46-1], Silica, Fused [60676-86-0], Tridymite [15468-32-2], Tripoli [1317-95-9]. Staurolite products may contain up to 5% quartz.

### 3. HAZARDS IDENTIFICATION

POTENTIAL HEALTH EFFECTS

PRIMARY ROUTE OF ENTRY: Nasal

EYE: Abrasion injuries possible if safety glasses are not worn. Eye contact with mineral sands may cause irritation with discomfort, tearing, and blurring of vision.

SKIN: Abrasion injuries possible during blasting operations or similar exposure, with high velocity direct exposure to skin.

INGESTION: N/A

INHALATION: The product, as shipped, does not pose any inhalation health hazard because it contains essentially no particles in the respirable size range. However, if during handling or use, the particles are broken down to a size that can be inhaled, the dusts may be harmful to the respiratory system.

**CHRONIC EFFECTS:** The predominant effect of overexposure to airborne quartz in humans is silicosis. Silicosis is a chronic disease characterized by the formation of silica-containing scar tissue in the lungs with symptoms of coughing, dyspnea, wheezing and nonspecific respiratory ailments. Very high short exposures to crystalline silica may lead to fatality from gross overexposure. Individuals with preexisting diseases of the lungs may have increased susceptibility to the toxicity of excessive exposures. Several recent epidemiology studies have shown, that in addition to silicosis, there is limited evidence of an excess of lung cancer in occupations involving exposures mainly to crystalline silica, such as stone cutters and granite industry workers. Occupational exposures at the recommended AEL of 0.1 mg/m<sup>3</sup> should protect workers from silicosis and lung tumors. Respiratory illness as a result of long-term exposure to particulates is possible. NIOSH-approved particulate respirators should be used during blasting operations.

**CARCINOGENICITY INFORMATION:** The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens. Material: Quartz, IARC = 1, NTP = X, OSHA = n/a, ACGIH = A2. Dupont controls quartz as a carcinogen.

## 4. FIRST AID MEASURES

### SIGNS AND SYMPTOMS OF EXPOSURE

**EYE:** Irritation with discomfort, tearing and blurring of vision

**SKIN:** Abrasion, redness

**INGESTION:** N/A

**INHALATION:** Coughing, shortness of breath

### FIRST AID PROCEDURES

**EYE:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Call a physician.

**SKIN:** Follow procedures appropriate to abrasion injuries. The compound is not hazardous by skin contact, but removal of particles and cleansing the skin after use is advisable.

**INGESTION:** No specific intervention is indicated as the compound is not hazardous by ingestion. However, if symptoms occur, consult a physician.

**INHALATION:** If inhaled, immediately remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Call a physician.

## 5. FIRE FIGHTING MEASURES

**FLAMMABLE PROPERTIES:** Nonflammable

**FLASH POINT / METHOD USED:** None

**AUTOIGNITION:** None

**FLAMMABILITY LIMITS (% by volume in air):** LEL: N/A UEL: N/A

**EXTINGUISHING MEDIA:** As appropriate for combustibles in area.

**NFPA RATINGS:** Health 0; Flammability 0; Reactivity 0.

**FIRE FIGHTING INSTRUCTIONS:** None

**COMBUSTION PRODUCTS:** None

## 6. ACCIDENTAL RELEASE MEASURES

**PERSONAL PRECAUTIONS:** Respiratory protection: NIOSH-approved respiratory equipment for abrasive blast environments or when handling respirable dust. Personal protection: NIOSH-approved garments and head gear during blasting operations. See Section 8. Wash thoroughly after handling. Note: Review FIRE FIGHTING MEASURES (Section 5) and HANDLING AND STORAGE (Section 7) before proceeding with clean up. Use appropriate personal protective equipment during clean-up.

**CLEANUP MEASURES:** Sweep up spillage.

## 7. HANDLING AND STORAGE

**NORMAL STORAGE:** General dry storage, ambient air temperature and pressure.

**HANDLING:** Avoid breathing dust. Wash thoroughly after handling. If handling respirable dust (flour), use of gloves and washing before eating, drinking, applying cosmetics or smoking is advisable to minimize dust inhalation from hands.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

ENGINEERING CONTROLS: Use sufficient ventilation to keep employee exposure below recommended limits. If using this product as an abrasive blast agent in confined areas, airborne dust levels should be controlled by physical enclosure of the abrasive blasting operation. The enclosure should be exhaust ventilated in accordance with 29 CFR 1910.94 Ventilation (a) Abrasive Blasting.

RESPIRATORY PROTECTION: A NIOSH / MSHA approved air purifying respirator with particulate cartridge or canister may be permissible under certain circumstances where airborne concentrations are expected to exceed exposure limits. Protection provided by air purifying respirators is limited. Use a NIOSH / MSHA approved positive pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection. For abrasive blasting use a continuous flow airline respirator covering head, neck, and shoulders to provide protection from rebound abrasive per 29 CFR 1910.94 (a) (5).

EYE AND FACE PROTECTION: Wear safety glasses with side shields.

SKIN AND HAND PROTECTION: In handling, gloves as desired by user. In use, wear impervious clothing, such as gloves, apron, boots or whole body suit, as appropriate.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL DESCRIPTION: Reddish brown solid, free-flowing sand

ODOR: Odorless

VAPOR PRESSURE (mm Hg): Not volatile

BOILING POINT: N/A

MELTING POINT: 1370°C (2500°F)

SPECIFIC GRAVITY (H<sub>2</sub>O = 1): 3.7

FLASH POINT: None

VAPOR DENSITY (AIR = 1): Not volatile

EVAPORATION RATE (BUTYL ACETATE = 1): Not volatile

SOLUBILITY: Insoluble in water

pH: N/A

## 10. STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable

CONDITIONS TO AVOID: None

INCOMPATIBILITY WITH OTHER MATERIALS: None reasonably foreseeable

HAZARDOUS DECOMPOSITION PRODUCTS: Decomposition will not occur

HAZARDOUS POLYMERIZATION: Polymerization will not occur

## 11. TOXICOLOGICAL INFORMATION

CARCINOGENICITY: If during handling or use, the particles are broken down to a size that can be inhaled, the dusts may be harmful to the respiratory system. Staurolite products may contain up to 5% quartz. The predominant effect of overexposure to airborne respirable quartz in humans is silicosis. Silicosis is a chronic fibrotic lung disease characterized by the formation of silica-containing scar tissue in the lungs with symptoms of coughing, dyspnea, wheezing and nonspecific respiratory ailments. Gross acute overexposures to quartz by inhalation may cause fatality. Epidemiological studies show that in addition to silicosis there is limited evidence of excess lung cancer in occupations involving exposures mainly to respirable quartz, such as stone cutters and granite industry workers.

LISTED CARCINOGEN BY: IARC, NTP

ANIMAL DATA: Quartz: Oral ALD: >11,000 mg/kg in male rats.

Quartz is not a skin irritant or a skin sensitizer in animals, but is a mild eye irritant. Single doses of 50 mg quartz administered by intratracheal instillation have resulted in pulmonary fibrosis at 60 and 120 days post exposure in rats. Repeated and chronic exposures as low as 0.7 mg instillation and 12 mg/m<sup>3</sup> by inhalation resulted in pulmonary fibrosis, inflammation, edema and emphysema in animals exposed to quartz. Lung tumors were observed in rats exposed for up to two years by inhalation to 12.4 or 51.6 mg/m<sup>3</sup> quartz. Lung tumors were also observed in rats exposed to quartz by intratracheal instillation. Silica was positive in mammalian cell cultures for cell transformation and chromosomal effects. It was negative in cell culture assays for gene mutation in bacteria and DNA damage in mammalian cells and in a whole animal assay for chromosomal effects. No animal test reports are available to define developmental, or reproductive toxicity.

## 12. ECOLOGICAL INFORMATION

Not available.

## 13. DISPOSAL CONSIDERATIONS

Treatment, storage, transportation, and disposal must be in accordance with applicable federal, state/provincial and local regulations. If approved, may be transferred to a land disposal site. If the spent grit contains contaminants at levels above those specified under RCRA, then the waste is defined as hazardous and must be managed per federal or state regulations governing hazardous waste.

## 14. TRANSPORTATION INFORMATION

NAME OF CONTENTS: Abrasive Grit

REPORTABLE QUANTITY: N/A

CONSTITUENTS: No hazardous substances at regulated levels HAZARD CLASS: Title III Hazard Classification Sectn. 311, 312

METHOD OF TRANSPORT: Shipping containers, hopper cars, hopper trucks, bags, semi-bulk bags.

EMERGENCY RESPONSE NUMBER: (800) 441-3637

COMMENTS: Not regulated as a hazardous material by DOT or IMO.

## 15. REGULATORY INFORMATION

US FEDERAL REGULATIONS: TSCA Inventory Status: Reported/Included. Title III Hazard Classifications Sections 311, 312 (Acute: No, Chronic: Yes, Fire: No, Reactivity: No, Pressure: No).

Not present on the following lists: SARA Extremely Hazardous Substance, CERCLA Hazardous Material, SARA Toxic Chemical. Canadian WHMIS Classification: D-2A. This product contains quartz which is known to the State of California to cause cancer.

NFPA, NPCA-HMIS RATING: Health: 0 (X for Chronic Health Effects), Flammability: 0, Reactivity: 0. Personal protection rating to be supplied by user depending on use conditions.

Originally prepared by: MSDS Coordinator, DuPont Titanium Technologies, P.O. Box 80709, Chestnut Run, Wilmington, DE 19898, 9 November 1996. Last revision 31 March 2003.

For further information see DuPont Staurolite Sands Data Sheet. Please see [www.titanium.dupont.com](http://www.titanium.dupont.com) for the latest version of this MSDS. The data in this Material Safety Data Sheet relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process. This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.