



The MSDS format adheres to the standards and regulatory requirements of the United States and may not meet regulatory requirements in other countries.

DuPont  
Material Safety Data Sheet

Page 1

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3004CR STAUROLITE PRODUCTS  
Revised 31-MAR-2003  
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CHEMICAL PRODUCT/COMPANY IDENTIFICATION  
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Material Identification

Corporate MSDS Number : DU002808  
Grade : See Component Section

Tradenames and Synonyms

STAUROLITE SANDS  
BIASILL  
COARSE STAUROLITE  
STARBLAST  
STARBLAST XL  
STARBLAST ULTRA

Company Identification

MANUFACTURER/DISTRIBUTOR  
DuPont Titanium Technologies  
1007 Market Street  
Wilmington, DE 19898

PHONE NUMBERS

Product Information : 1-800-441-9485 (outside the U.S.  
302-774-1000)  
Transport Emergency : CHEMTREC 1-800-424-9300(outside U.S.  
703-527-3887)  
Medical Emergency : 1-800-441-3637 (outside the U.S.  
302-774-1000)

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COMPOSITION/INFORMATION ON INGREDIENTS  
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Components

Material	CAS Number	%
"BIASILL":		
STAUROLITE	12182-56-8	86
TITANIUM MINERALS		6
QUARTZ	14808-60-7	<5
ZIRCON	14940-68-2	3
KYANITE	1302-76-7	2
COARSE STAUROLITE:		
STAUROLITE	12182-56-8	85
TITANIUM MINERALS		10
QUARTZ	14808-60-7	<5
"STARBLAST":		
STAUROLITE	12182-56-8	86
TITANIUM MINERALS		6
QUARTZ	14808-60-7	<5

## (COMPOSITION/INFORMATION ON INGREDIENTS - Continued)

ZIRCON	14940-68-2	3
KYANITE	1302-76-7	2
"STARBLAST" XL:		
STAUROLITE	12182-56-8	90
TITANIUM MINERALS		6
ZIRCON	14940-68-2	2
KYANITE	1302-76-7	1
QUARTZ	14808-60-7	<1
"STARBLAST" ULTRA		
STAUROLITE	12182-56-8	85
TITANIUM MINERALS		7
QUARTZ	14808-60-7	<5
ZIRCON	14940-68-2	3
KYANITE	1302-76-7	2

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HAZARDS IDENTIFICATION  
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## Potential Health Effects

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. Eye contact with mineral sands may cause irritation with discomfort, tearing, and blurring of vision.

Staurolite Products may contain up to 5% quartz.

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 pre-existing 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 exposure at the recommended AEL of 0.1 mg/m<sup>3</sup> should protect workers from silicosis and lung tumors.

## # Carcinogenicity Information

The following components are listed by IARC, NTP, OSHA or ACGIH as carcinogens.

## (HAZARDS IDENTIFICATION - Continued)

Material	IARC	NTP	OSHA	ACGIH
QUARTZ	1	X		A2

DuPont controls the following materials as carcinogens:  
QUARTZ.

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FIRST AID MEASURES  
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## First Aid

## INHALATION

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

## SKIN CONTACT

The compound is not hazardous by skin contact, but removal of particles and cleansing the skin after use is advisable.

## EYE CONTACT

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

## INGESTION

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

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FIRE FIGHTING MEASURES  
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## Flammable Properties

Will not burn.

## Extinguishing Media

As appropriate for combustibles in area.

## Fire Fighting Instructions

None.

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ACCIDENTAL RELEASE MEASURES  
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## Safeguards (Personnel)

NOTE: Review FIRE FIGHTING MEASURES and HANDLING (PERSONNEL) sections before proceeding with clean-up. Use appropriate PERSONAL PROTECTIVE EQUIPMENT during clean-up.

## Accidental Release Measures

Sweep up spillage.

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HANDLING AND STORAGE  
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## Handling (Personnel)

Avoid breathing dust. Wash thoroughly after handling.

If handling respirable flour, use of gloves and washing before eating, drinking, applying cosmetics or smoking is advisable to minimize dust inhalation from hands.

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EXPOSURE CONTROLS/PERSONAL PROTECTION  
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## 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.

## Personal Protective Equipment

## RESPIRATOR

A NIOSH 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 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.

## (EXPOSURE CONTROLS/PERSONAL PROTECTION - Continued)

## EYE/FACE PROTECTION

Wear safety glasses with side shields.

## RESPIRATORS

A NIOSH 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 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 air-line respirator covering head, neck, and shoulders to provide protection from rebound abrasive per 29 CFR 1910.94 (a)(5).

## PROTECTIVE CLOTHING

Wear impervious clothing, such as gloves, apron, boots or whole bodysuit, as appropriate.

## # Exposure Guidelines

## Applicable Exposure Limits

## QUARTZ

PEL (OSHA)	: Total dust, (30 mg/m <sup>3</sup> / % SiO <sub>2</sub> + 2) Respirable dust, (10 mg/m <sup>3</sup> / % SiO <sub>2</sub> + 2) as 8 Hr TWA's
TLV (ACGIH)	: 0.05 mg/m <sup>3</sup> , respirable dust, 8 Hr. TWA, A2 Or see: Christobalite [14464-46-1], Silica, Fused [60676-86-0], Tridymite [15468-32-2], Tripoli [1317-95-9]
AEL * (DuPont)	: 0.1 mg/m <sup>3</sup> , 8 Hr. TWA, respirable dust

## ZIRCON

PEL (OSHA)	: 5 mg/m <sup>3</sup> , 8 Hr. TWA, as Zr
TLV (ACGIH)	: 5 mg/m <sup>3</sup> , 8 Hr. TWA, as Zr, A4 STEL 10 mg/m <sup>3</sup> , as Zr, A4
AEL * (DuPont)	: None Established

\* AEL is DuPont's Acceptable Exposure Limit. Where governmentally imposed occupational exposure limits which are lower than the AEL are in effect, such limits shall take precedence.

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PHYSICAL AND CHEMICAL PROPERTIES  
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## Physical Data

Vapor Pressure : Not volatile  
Vapor Density : Not volatile  
Melting Point : 1,370 C (2,500 F)  
Evaporation Rate : (Butyl Acetate = 1)  
                  Not volatile  
Solubility in Water : Insoluble  
Odor : Odorless  
Form : Solid, free-flowing sand  
Color : Reddish brown  
Specific Gravity : 3.7

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STABILITY AND REACTIVITY  
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## Chemical Stability

Stable.

## Incompatibility with Other Materials

None reasonably foreseeable.

## Decomposition

Decomposition will not occur.

## Polymerization

Polymerization will not occur.

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TOXICOLOGICAL INFORMATION  
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## 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

## (TOXICOLOGICAL INFORMATION - Continued)

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.

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DISPOSAL CONSIDERATIONS  
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## Waste Disposal

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.

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TRANSPORTATION INFORMATION  
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## Shipping Information

## Shipping Containers

Hopper Cars  
Hopper Trucks  
Bags  
Semi-bulk Bags

STAUROLITE PRODUCTS ARE NOT REGULATED AS A HAZARDOUS MATERIAL BY DOT OR IMO.

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REGULATORY INFORMATION  
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## U.S. Federal Regulations

TSCA Inventory Status : Reported/Included.

TITLE III HAZARD CLASSIFICATIONS SECTIONS 311, 312

Acute : No  
Chronic : Yes  
Fire : No  
Reactivity : No  
Pressure : No

## (REGULATORY INFORMATION - Continued)

## LISTS:

SARA Extremely Hazardous Substance	-No
CERCLA Hazardous Material	-No
SARA Toxic Chemical	-No

## CANADIAN WHMIS CLASSIFICATION:

D-2A

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OTHER INFORMATION  
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## NFPA, NPCA-HMIS

NPCA-HMIS Rating	
Health	: 0
Health	: x (Chronic Health Effects)
Flammability	: 0
Reactivity	: 0

Personal Protection rating to be supplied by user depending on use conditions.

## Additional Information

For further information, see DuPont Stauroelite Sands Data Sheet.

Please see [www.titanium.dupont.com](http://www.titanium.dupont.com) for the latest version of this MSDS.

## WARNING!

This product contains quartz which is known to the state of California to cause cancer.

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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.

Responsibility for MSDS	: MSDS Coordinator
>	: DuPont Titanium Technologies
Address	: Wilmington, DE 19898
Telephone	: (800) 441-9485

# Indicates updated section.

This information is based upon technical information believed to be reliable. It is subject to revision as additional knowledge and experience is gained.

End of MSDS