



CRYSTAL SYSTEMS INC.

Material Safety Data Sheet

Product: Sapphire

Revision Date: 06/28/2006

Company: Crystal Systems Inc.
27 Congress Street
Salem, MA 01970
Tel: 978-745-0088
www.crystalsystems.com

Common Name: Sapphire
Chemical Family: Metal Oxide
D.O.T. Shipping Name, Hazard Class, ID Number: Not Regulated

SECTION I: MATERIAL DESCRIPTION

Chemical Name and Formula: Aluminum Oxide Al_2O_3
Other Designation: Alumina
Composition: 99+% Aluminum Oxide
Other Impurities: Total less than 1.0%
CAS No. 1344-28-1

SECTION II: PHYSICAL AND CHEMICAL PROPERTIES

Appearance / Odor: Solid, White, Clear, Odorless
Boiling Point: 2977°C
Melting Point: 2050°C
Vapor Pressure: 1 mm at 2158°C
Evaporation Rate: Not Applicable
Chemical Reactivity: Not Applicable
Water Solubility: Insoluble
Specific Gravity: 3.98

SECTION III: FIRE AND EXPLOSION DATA

Flash Point: Not Applicable
Auto-Ignition Temperature: Not Applicable
Flammable Limits Lower/Upper: Not Applicable
Extinguishing Media: Not Applicable
Special Firefighting Procedures: Not Applicable
Explosive Potential: Not Applicable

SECTION IV: REACTIVITY DATA

Not reactive with: Air, water, heat, oxiders, corrosives, and non-corrosives.



Material Safety Data Sheet

Product: Sapphire

SECTION V: HEALTH HAZARD AND FIRST AID

Inhalation: Not possible unless material is ground, creating a fine powder or dust. Excessive exposure to the powder or dust may cause cough, mucous production, shortness of breath. Remove victim to fresh air immediately. Obtain medical attention if breathing difficulty persists beyond 15 minutes.

Ingestion: This material is not expected to be an ingestion hazard; no known human or animal health effects exist.

Eye Contact: Powder or dust may cause eye irritation. Flush eyes with copious amounts of clean water for 15 minutes; retract eyelids often. Seek emergency medical attention if pain, blinking, tears or redness persist.

Skin Contact: Powder or dust may cause skin irritation. Wash with soap and water. Seek medical assistance, as necessary, especially if irritation develops or persists.

Other Health Hazards: Except for the effects of airborne dust that may be irritating to the skin, eyes and mucous membranes, chronic exposure to this material is not expected to have any adverse health hazards.

SECTION VI: SPILL, LEAK, AND DISPOSAL PROCEDURES

Solid material may be disposed of at a licensed sanitary landfill. Not a designated RCRA hazardous waste.

Handle dust as a nuisance; respirator may be required. If not able to recover, material may be disposed of at a licensed sanitary landfill. Not a designated RCRA hazardous waste.

SECTION VII: OCCUPATIONAL EXPOSURE LIMITS FOR DUST

<u>Substance</u>	<u>Source</u>	<u>Date</u>	<u>Type</u>	<u>Value/Units</u>	<u>Time</u>
Nuisance Dust (Total Dust)	OSHA	1971	PEL	15 mg/m ³	8 hrs
Nuisance Dust (Respirable Fraction)	OSHA	1971	PEL	5 mg/m ³	8 hrs
Nuisance Dust (Total Dust)	ACGIH	1985	TLV	10 mg/m ³	8 hrs
Nuisance Dust (Respirable Fraction)	ACGIH	1985	TLV	5 mg/m ³	8 hrs

SECTION VIII: PROTECTIVE MEASURES AND PRECAUTIONS

If exposure exceeds the PEL/TLV for nuisance particulate, use NIOSH/MSHA approved respiratory protection equipment. Dust service goggles should be worn to prevent eye contact with airborne particles that may be associated with this product. Protective gloves recommended during contact with dust or powder. If handling this material results in dust generation, special ventilation may be required to avoid exposure standards for nuisance dust (see Section VII).

DISCLAIMER: The information in this Material Safety Data Sheet was obtained from sources that are believed to be reliable, and is presented in good faith. The information is provided, however, without any warranty, express or implied, regarding its comprehensiveness or accuracy.