Plasmaterials, Inc.
2268 Research Drive
Livermore, CA 94550
Ph: (925) 447-4030 Fx: (925) 447-4031
http://plasmaterials.com

MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

COMPOSITION	PRODUCT NAME
$BaTiO^3$	**Barium titanate**

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

MATERIAL OR COMPONENT	CAS NUMBER	WT%	EXPOSURE LIMITS	
			OSHA PEL (Mg/M3)	ACGIH TLV(MG/M3)
Barium titanate	**12047-27-7**	**100**	**Not Set**	**Not Set**

Section 3- PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS)	APPERANCE AND ODOR
□ **Liquid** □ **Solid** □ **Gas** □ **Other**	**White powder, pieces or pressed parts, no odor**
MELTING POINT (BASE METAL)	SPECIFIC GRAVITY
1654˚ C	**5.95gm/cc**

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used)	Flammable Limits	LEL	UEL
N/A	**N/A**	**N.A.**	**N.A.**

EXTINGUISHING MEDIA

Use graphite or dry sodium chloride, do not use water

SPECIAL FIRED FIGHTING PROCEDURES

Wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Isolate runoff to prevent environmental pollution

UNUSUAL FIRE AND EXPLOSION HAZARDS

When heated to decomposition, it may emit toxic fumes of barium and titanium. Produces heat on contact with water and steam.

Section 5- REACTIVITY DATA

STABILITY	INCOMPATABILITY (MATERIALS TO AVOID)
Stable	**Water & Steam**

CONDITIONS TO AVOID

None

HAZARDOUS DECOMPOISTION PRODUCTS

BaO, TiO2

Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD

□Inhalation □Skin □Skin Absorption □Eye Contact □Ingestion

EFFECTS OF OVEREXPOSURE

Insoluble barium compounds (barium titanate) have low toxicity. However, soluble barium compounds can lead to toxic effects. Soluble barium salts, such as the chloride and sulfide, are poisonous when taken by mouth. Few cases of industrial systemic poisoning have been reported, but one investigator described a fatal case of poisoning attributed to barium oxide. The same investigator produced paralysis in animals with barium oxide and carbonate. The usual result of exposure to the sulfide, oxide and carbonate is irritation of the eyes, nose, throat, and skin, producing dermatitis. For titanium compounds, these materials are considered to be physiologically inert. There are no reported cases where titanium has caused intoxication. The dust of titanium compounds may be placed in the nuisance category.

INHALATION: Acute; may be a nuisance dust causing sneezing, coughing, irritation of the mucus membrane in the respiratory tract. Chronic: None.

INGESTION: Acute: None. Chronic: Barium Oxide may cause poisoning.

SKIN CONTACT: Acute: May cause itching irritation. Chronic: May cause dermatitis.

EYE CONTACT: Acute: May cause itching and irritation. Chronic: No chronic health effects recorded.

TARGET ORGANS: Soluble compounds may affect the heart, central nervous system, skin, respiratory system and eyes.

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove from exposed area to fresh air immediately; give oxygen if breathing is difficult. Seek medical attention.

SKIN CONTACT: Remove contaminated clothing and wash affected area with soap or mild detergent and large amounts of water until no evidence of the chemical remains. Seek medical attention.

EYE CONTACT: Flush eyes with lukewarm water lifting upper eyelids for fifteen minutes. Seek medical attention.

INGESTION: Give 1-2 cups of milk or water and induce vomiting. Seek medical attention.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCUDRES

Wear appropriate respiratory and protective equipment. Isolate the area where the spill occurred and insure proper ventilation if available. Vacuum up the spill using a high efficiently unit and place in a container for proper disposal. Take care not to raise dust.

WASTE DISPOSAL METHODS

Observe all federal, state and local regulations when storing or disposing of this substance.

Section 8- SPECIAL PROTECTION

RESPIRATORY

NIOSH-approved dust respirator.

VENTILATION

Local exhaust: To maintain concentration at low exposure levels. Mechanical recommended.

EYE PROTECTION & PROTECTIVE CLOTHING

Wear Safety glasses, rubber gloves and protective gear suitable to prevent contamination.

Section 9- SPECIAL PRECAUTIONS

Implement engineering and work practices. Controls to reduce and maintain concentration of exposure at low levels. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating and/or smoking. Do not blow dust off of clothing with compressed air.