


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

## SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION <b>BaS</b>		PRODUCT NAME <b>Barium Sulfide</b>
SUPPLIER: <b>Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030</b>	RECOMMENDED USE: <b>Laboratory Chemicals Scientific Research</b>	EMERGENCY TELEPHONE NUMBERS <b>US: 001-800-424-9300 Europe: 001-703-527-3887</b>

Section 2- HAZARD(S) IDENTIFICATION	
<b>HEALTH HAZARDS:</b> <b>Acute Toxicity (Oral):</b> Category 3 <b>Acute Toxicity (Inhalation):</b> Category 4 <b>Corrosive to Metals:</b> Category 1 <b>Skin Corrosion:</b> Category 1A <b>Serious Eye Damage:</b> Category 1 <b>Acute Aquatic Toxicity:</b> Category 1	<b>LABEL ELEMENTS:</b> <b>Signal Word:</b> Danger
<b>Hazard Statements:</b> May be corrosive to metals. Toxic if swallowed. Causes severe skin burns and eye damage. Harmful if inhaled. Very toxic to aquatic life.	
	
<b>PRECAUTIONARY STATEMENTS</b>	
<b>Prevention:</b> -Keep only in original container -Do not handle until all safety precautions have been read and understood -Use personal protective equipment as required -Do not breathe dust or mist -Wash thoroughly after handling. Do not eat, drink or smoke when using this product. -Use only outdoors or in a well-ventilated area -Avoid release to the environment	
<b>Response:</b> -If swallowed: Immediately call a poison center/doctor. Rinse mouth. Do not induce vomiting. -If on skin/hair: Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. -If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. -Immediately call a Poison Center or doctor/physician. -If spillage occurs: Absorb spillage to prevent material damage. Collect spillage	
<b>Storage:</b> -Store locked up.	

-Store in corrosive resistant stainless steel container with a resistant inner liner.

**Disposal:**

-Dispose of contents/container to an approved waste disposal plant in accordance with local, regional, national, and international regulations.

**Hazards not otherwise classified (HNOC):**

-Contact with acids liberates toxic gas .

**Section 3- COMPOSITION / INFORMATION ON INGREDIENTS**

COMPONENT	CAS-No	Weight%
Barium Sulfide	21109-95-5	100

**Section 4- FIRST AID MEASURES**

**GENERAL ADVICE:** Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

**INHALATION:** Remove victim from exposure to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Call a physician or poison control center immediately.

**SKIN CONTACT:** Remove and isolate contaminated clothing and shoes. Wash skin immediately with soap and plenty of water. Take victim immediately to the hospital. Wash clothing separately before reuse.

**EYE CONTACT:** Do not rub eyes. Immediately flush eyes with plenty of water, lifting upper and lower lids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Consult of physician. Continue rinsing eyes during transport to hospital.

**INGESTION:** Call a physician or poison control center immediately. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Never give anything by mouth to an unconscious person.

**MOST IMPORTANT SYMPTOMS/EFFECTS:** Toxic if swallowed. Causes severe skin burns and eye damage. Harmful if inhaled.

**NOTES TO PHYSICIAN:** Provide general supportive measures and treat symptomatically.

**Section 5- FIREFIGHTING MEASURES**

<b>Suitable Extinguishing Media:</b> Dry Powder	<b>Unsuitable Extinguishing Media:</b> No Information Available
<b>Flash Point:</b> No Information Available <b>Method:</b> No Information Available <b>Auto Ignition Temperature:</b> No Information Available	<b>Explosion Limits:</b> <b>Upper:</b> No Data Available <b>Lower:</b> No Data Available <b>Sensitivity to Mechanical Impact:</b> No Information Available <b>Sensitivity to Static Discharge:</b> No Information Available
<b>Specific Hazards Arising from the Chemical:</b> Sulfur oxides, Barium oxides	
<b>Fire Fighting Equipment/Instructions:</b> No data available	
<b>Protective Equipment &amp; Precautions for Firefighters:</b> As in any fire, Firefighters must wear full face, self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective clothing to prevent contact with skin and eyes.	

## Section 6- ACCIDENTAL RELEASE MEASURES

**Personal Precautions:** Immediately evacuate personnel to safe areas. Keep unnecessary personnel away and away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid dust formation. Avoid inhalation of dust. Ensure adequate ventilation. For personal protection, see Section 8.

**Environmental Precautions:** Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

**Methods for Containment & Clean Up:** Avoid dispersal of the dust in the air. Stop the flow of material, if this is without risk. Sweep up and shovel. Keep in suitable, closed containers for disposal. For waste disposal, see Section 13.

## Section 7- HANDLING AND STORAGE

**Handling:** Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Provide appropriate exhaust ventilation at places where dust is formed.

**Storage:** Store locked up. Store in a dry and well-ventilated place. Store in tightly closed container. Never allow product to get in contact with water during storage. Do not store near acids. Store away from incompatible materials (see Section 10)

## Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control of Environmental Exposure:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

### Personal Protective Equipment:

**Eye/Face Protection:** Face shield and safety glasses. Use equipment tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

**Skin and Body Protection:** Wear appropriate chemical resistant gloves to prevent skin exposure. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Wear complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

**Respiratory Protection:** Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100(US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirator and components tested and approved under appropriate government standards such as NIOSH (US) and CEN (EU).

**Hygiene Measures:** Handle in accordance with good industrial hygiene and safety practice. Keep away from food and drink. Wash thoroughly after handling and before eating, drinking and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

## Section 9- PHYSICAL AND CHEMICAL PROPERTIES

**Physical State:** Solid

**Appearance:** Not Available

**Odor:** Sulphurous

**Odor Threshold:** No information available

**pH:** No information available

**Melting Point/Range:** 1200°C (2192°F)

**Boiling Point/Range:** Not Applicable

**Flash Point:** No information available

**Evaporation Rate:** No information available

**Flammability (solid,gas):** No information available  
**Flammability or Exposure Limits:**  
**Upper:** No data available  
**Lower:** No data available  
**Vapor Pressure:** No data available  
**Vapor Density:** No information available  
**Relative Density:** 4.25 g/mL at 15°C (59°F)  
**Solubility:** 72.8 g/l at 20°C (68°F)-soluble  
**Partition coefficient; n-octanol/water:** No information available  
**Auto Ignition Temperature:** Not Applicable  
**Decomposition Temperature:** No information available  
**Viscosity:** No information available  
**Explosive Properties:** No information available  
**Oxidizing Properties:** No information available  
**Molecular Formula:** BaS  
**Molecular Weight:** 169.39 g/mol

## Section 10- STABILITY AND REACTIVITY

**Reactive Hazard:** No data available

**Stability:** Stable under recommended storage conditions.

**Conditions to Avoid:** Contact with incompatible products.

**Incompatible Materials:** Acids, oxidizing agents, Phosphorous oxides, Lead, Potassium chlorate, Potassium nitrate

**Hazardous Decomposition Products:** No hazardous decomposition products are known

**Hazardous Reactions:** No data available

## Section 11- TOXICOLOGICAL INFORMATION

### **Information on likely Routes of Exposure:**

**Inhalation:** Extremely hazardous if inhaled.

**Skin Contact:** Very hazardous, skin corrosion/irritation

**Eye Contact:** Causes serious eye irritation/damage

**Ingestion:** Extremely hazardous if ingested.

### **Information on Toxicological Effects:**

**Acute Toxicity:** LD50 Oral-rat-male and female-271 mg/kg (OECD Test guideline 401)

**Skin Corrosion/Irritation:** Causes severe burns

**Serious Eye Damage/Eye Irritation:** Causes serious eye irritation/damage

**Respiratory Sensitization:** No information available

**Skin Sensitization:** No information available

#### **Carcinogenicity:**

Component	CAS-No	IARC	NTP	OSHA
Barium Sulfide	21109-95-5	Not Listed	Not Listed	Not Listed

**Mutagenic Effects:** No information available

**Reproductive Effects:** No information available.

**STOT – single exposure:** No information available

**STOT – repeated exposure:** No information available

**Aspiration Hazard:** No information available

**RTECS:** Not available.

## Section 12- ECOLOGICAL INFORMATION

**Ecotoxicity:** No data available

**Persistence and Degradability:** No data available

**Bioaccumulation/Accumulation:** No data available

**Mobility:** No data available

**Other Adverse Effects:** Environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

### Section 13- DISPOSAL CONSIDERATIONS

**Waste Disposal Methods:** Collect and reclaim or dispose in sealed containers at licensed waste disposal site. This material and its container must be disposed of as hazardous waste. Must be incinerated in a suitable incineration plant holding a permit delivered by the competent authorities. Do not allow this material to drain into sewers/water supplies. Dispose of contents/containers in accordance with local, regional, national and international hazardous waste regulations.

### Section 14- TRANSPORT INFORMATION

**DOT:**

**UN-No:** 2813

**Proper Shipping Name:** Water-reactive solid, n.o.s. (Barium sulfide)

**Hazard Class:** 4.3

**Packing Group:** II

**IATA:**

**UN-No:** 2813

**Proper Shipping Name:** Water-reactive solid, n.o.s. (Barium sulfide)

**Hazard Class:** 4.3

**Packing Group:** II

**EMS-No:** F-G, S-N

**IMDG:**

**UN-No:** 2813

**Proper Shipping Name:** Water-reactive solid, n.o.s. (Barium sulfide)

**Hazard Class:** 4.3

**Packing Group:** II

### Section 15- REGULATORY INFORMATION

**US Federal Regulations:** All components are on the U.S. EPA TSCA Inventory List. This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

**TSCA Section 12(b):** Not regulated

**U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):** Listed

**SARA 302 Extremely Hazardous Substance:** Not Listed

**SARA 313 (TRI reporting):**

Component	CAS-No	% by Weight
Barium Sulfide	21109-95-5	100

**SARA 311/312 Hazardous Chemical:** Yes, Reactivity Hazard, Acute Health Hazard

**HMIS (USA):**

**Health Hazard:** 2

**Fire Hazard:** 3

**Personal Protection:** E

**Reactivity:** 0

**US California Proposition 65:** California Safe Drinking Water and Toxic Enforcement Act of 1986: This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

**US Massachusetts RTK – Substance List:** Not regulated

**US New Jersey Worker & Community Right-to-Know Act:** Barium Sulfide (CAS 21109-95-5)

**US Pennsylvania RTK – Hazardous Substances:** Barium Sulfide (CAS 21109-95-5)

**US Pennsylvania Worker & Community Right-to-Know Law:** Barium Sulfide (CAS 21109-95-5)

## **Section 16- OTHER INFORMATION**

The above information is accurate to the best of our knowledge. However, since data, safety standards and government regulations are subject to change, the conditions of handling and use, or misuse are beyond our control, Plasmaterials, Inc. makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Users should satisfy themselves that they have all current data relevant to their particular use.

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