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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION Bi2O3		PRODUCT NAME Bismuth Oxide
SUPPLIER: Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030	RECOMMENDED USE: Laboratory Chemicals Scientific Research	EMERGENCY TELEPHONE NUMBERS US: 001-800-424-9300 Europe: 001-703-527-3887

Section 2- HAZARD(S) IDENTIFICATION

Physical Hazards: Not Classified	Health Hazards: Not Classified
Environmental Hazards: Not Classified	OSHA Defined Hazards: Not Classified
LABEL ELEMENTS:	
Hazard Symbol: None	Signal Word: None
HAZARD STATEMENTS	
-The substance does not meet the criteria for classification	
PRECAUTIONARY STATEMENTS	
-P264: Wash face, hands, and any exposed skin thoroughly after handling	
-P270: Do not eat, drink, or smoke when using this product	
-P405: Store locked up	
-P501: Dispose of contents/container in accordance with local/regional/national/international regulations	
Hazards not otherwise classified (HNOC):	
-None identified.	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Bismuth Oxide	1304-76-3	465.96 g/mol

Section 4- FIRST AID MEASURES

<p>GENERAL ADVICE: Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.</p> <p>Inhalation: Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Consult a physician if symptoms develop or persist.</p> <p>Skin Contact: Wash off with soap and water. Consult a physician if irritation develops and/or persists.</p> <p>Eye Contact: 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. Get medical attention if irritation develops and/or persists.</p> <p>Ingestion: Rinse mouth with water. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell. Get medical attention if symptoms occur.</p> <p>Most Important Symptoms/Effects: Narcosis. Decrease in motor functions. Behavioral changes. Edema. Proteinuria. Prolonged exposure may cause chronic effects.</p> <p>Indication of any Immediate Medical Attention and Special Treatment Needed: Treat symptomatically</p>
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Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:

Water Fog, Alcohol-Resistant Foam, Dry Chemical Powder, Carbon Dioxide (CO₂)

Unsuitable Extinguishing Media:

None known

Specific Hazards Arising from the Chemical:

Gases hazardous to health may be formed

General Fire Hazards:

No unusual fire or explosion hazards noted

Protective Equipment & Precautions for Firefighters:

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.

Specific Methods: Use standard firefighting procedures and consider the hazards of other involved materials. Use water spray to cool unopened containers.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personnel protective equipment. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personnel protection see Section 8.

Environmental Precautions: Avoid discharge into drains, water courses or onto the ground

Methods for Containment & Clean Up: Stop the flow of material if this is without risk. Keep in suitable, closed containers for disposal. Never return spills to original containers for re-use. Following product recovery, flush area with water. For waste disposal see Section 13.

Section 7- HANDLING AND STORAGE

Handling: Use care in handling and storage. Observe good industrial hygiene practices.

Storage: Store in original tightly closed container. Store in a cool, dry place out of direct sunlight. Store away from incompatible materials.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Occupational Exposure Limits/Components with Workplace Control Parameters: No exposure limits noted for this substance.

Biological Limit Values: No biological exposure limits noted for this substance

Engineering Measures: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Appropriate Engineering Controls: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

Control Parameters: Follow standard monitoring procedures

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166 (EU).

Skin and Body Protection: Handle with appropriate chemical resistant gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Wear suitable protective clothing. The type of protective clothing equipment must be selected according to the concentration and amount of the dangerous substance and to the specific workplace.

Respiratory Protection: In case of insufficient ventilation, wear suitable respiratory equipment. Where

protection from nuisance levels of dusts is desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Thermal Hazards: Wear appropriate thermal protective clothing when necessary.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice. When using do not smoke. 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.

Contaminated work clothing should not be allowed out of the workplace.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 817°C (1,503°F)

Boiling Point/Range: 1,890 °C (3,434°F)

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): No information available

Flammability or Explosive Limits:

Upper: No data available

Lower: No data available

Vapor Pressure: No information available

Vapor Density: No information available

Relative Density: 8.9 g/cm³

Solubility: No information available

Partition coefficient; n-octanol/water: No information available

Auto Ignition Temperature: No information available

Decomposition Temperature: No information available

Viscosity: No information available

Explosive Properties: No information available

Oxidizing Properties: No information available

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: Stable and non-reactive under normal conditions of use, storage, and transport

Stability: Stable under normal conditions

Conditions to Avoid: Contact with incompatible materials

Incompatible Materials: Strong oxidizing agent

Hazardous Decomposition Products: No information available

Hazardous Polymerization: No information available

Hazardous Reactions: No information available

Section 11- TOXICOLOGICAL INFORMATION

Information on likely Routes of Exposure:

Inhalation: No information available

Skin Contact: No information available

Eye Contact: No information available

Ingestion: No information available

Symptoms Related to the Physical, Chemical and Toxicological Characteristics: Narcosis. Edema. Proteinuria. Behavioral changes. Decrease in motor functions.

Information on Toxicological Effects:

Acute Toxicity: No information available

Skin Corrosion/Irritation: No information available.

Serious eye damage/irritation: No information available.

Respiratory or Skin Sensitization: No information available

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.
Germ Cell Mutagenicity: No information available
Reproductive Toxicity: No information available
Development Toxicity: No information available
Specific Target Organ Toxicity – single exposure: Causes damage to organs
Specific Target Organ Toxicity – repeated exposure: Causes damage to organs through prolonged or repeated exposure
Aspiration Hazard: No information available
Chronic Effects: Causes damage to organs through prolonged or repeated exposure
-To the best of our knowledge, the chemical, physical and toxicological properties have not been thoroughly investigated.

Section 12- ECOLOGICAL INFORMATION

Toxicity: The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.
Persistence and Degradability: No information available
Bioaccumulation/Accumulation: No information available
Mobility in Soil: No information available
Results of PBT & vPvB assessment: PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.
Other Adverse Effects: No information available.

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Collect and reclaim or dispose in sealed containers to a licensed disposal company. Dispose of contaminated packaging as unused product. This material and its container must be disposed of as hazardous waste. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14- TRANSPORT INFORMATION

DOT: Not regulated as dangerous goods
IATA: Not regulated as dangerous goods
IMDG/IMO: Not regulated as dangerous goods

Section 15- REGULATORY INFORMATION

US Federal Regulations: All components are on the U.S. EPA TSCA Inventory List.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D): Not regulated
U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052): Not regulated
SARA 302 Extremely Hazardous Substance: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302
SARA 304 Emergency Release Notification: Not regulated
SARA 311/312 Hazardous Chemical: No
SARA 313 (TRI Reporting): This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313
CERCLA Hazardous Substance List (40 CFR 302.4): Not Listed
Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List: Not regulated
Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130): Not regulated
Safe Drinking Water Act (SDWA): Not regulated
US California Proposition 65: This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

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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