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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION Be		PRODUCT NAME Beryllium
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

HEALTH HAZARDS: -Acute Toxicity (Oral): Category 3 (H301) -Skin Irritation: Category 2 (H315) -Eye Irritation: Category 2A (H319) -Skin Sensitization: Category 1 (H317) -Carcinogenicity: Category 1B (H350) -Specific Target Organ Toxicity, Repeated Exposure: Category 1 (H372)	
Physical Hazards: Not Classified	OSHA Defined Hazards: Not Classified
	Environmental Hazards: Not Classified

LABEL ELEMENTS: Signal Word: Danger



HAZARD STATEMENTS

- H301: Toxic if swallowed.
- H315: Causes skin irritation
- H317: May cause an allergic skin reaction
- H319: Causes serious eye irritation
- H350: May cause cancer.
- H372: Causes damage to organs through prolonged or repeated exposure.

PRECAUTIONARY STATEMENTS

- P201: Obtain special instructions before use
- P202: Do not handle until all safety precautions have been read and understood
- P260: Do not breathe dust/fume/gas/mist/vapors/spray.
- P264: Wash thoroughly after handling.
- P270: Do not eat, drink, or smoke when using this product.
- P272: Contaminated work clothing should not be allowed out of the workplace
- P280: Wear protective gloves/protective clothing/eye protection/face protection
- P301+P310+P330: If swallowed: Immediately call a poison center/doctor. Rinse mouth.
- P302+P352: If on skin: Wash with plenty of soap and water.
- P305+P351+P338: If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if

present and easy to do. Continue rinsing.
 -P308+P313: If exposed or concerned: Get medical advice/attention
 -P333+P313: If skin irritation or rash occurs get medical advice/attention.
 -P337+P313: If eye irritation persists get medical advice/attention
 -P362+P364: Take off contaminated clothing and wash it before reuse.
 -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
Beryllium	7440-41-7	9.01 g/mol

Section 4- FIRST AID MEASURES

GENERAL ADVICE: If exposed or concerned: 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.

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. Call a poison control center or doctor/physician if you feel unwell.

SKIN CONTACT: Take off all contaminated clothing. Wash off with soap and plenty of water. Get medical attention if irritation develops and/or persists. Wash work clothing and protective equipment to remove contaminants.

EYE CONTACT: Do not rub eyes. 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.

INGESTION: If swallowed give water to drink (two glasses at most). Seek medical advice/attention immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20-40 g in a 10% slurry) and consult a doctor as quickly as possible.

MOST IMPORTANT SYMPTOMS/EFFECTS: The most important known symptoms and effects are described in the labeling (see section 2) and/or in section 11.

NOTES TO PHYSICIAN: No information available

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media: Use extinguishing measures that are appropriate to local circumstances and the surrounding environment

Unsuitable Extinguishing Media: No information available

Specific Hazards Arising from the Chemical: Beryllium Oxides. Ambient fire may liberate hazardous vapors. Not combustible.

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.

Firefighting Instructions/Specific Methods: Use standard firefighting procedures and consider the hazards of other involved materials. Prevent fire extinguishing water from contaminating surface water or the ground water system.

General Fire Hazards: No unusual fire or explosion hazards noted.

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection, see Section 8 of SDS.

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

Methods for Containment & Clean Up: Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions, see Sections 7 and 10. Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.
 -For waste disposal, see Section 13 of SDS.

Section 7- HANDLING AND STORAGE

Handling: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Work under hood. Do not inhale substance/mixture. Minimize dust generation and accumulation. Avoid breathing dust. When using, do not eat, drink, or smoke. Wear appropriate personal protection equipment. Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face thoroughly after handling. Observe good industrial hygiene practices.

Storage: Store locked up. Store in original tightly closed container. Store in a dry, well-ventilated place. Store away from incompatible materials (see Section 10 of SDS)

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Component	CAS-No.	Value	Control Parameters	Basis
Beryllium	7440-41-7	TWA	0.0002 mg/m ³	USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
		STEL	0.002 mg/m ³	USA. Occupational Exposure Limits (OSHA) Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
		TWA	2 mg/m ³	USA. Occupational Exposure Limits (OSHA) Table Z-2
		CEIL	5 mg/m ³	USA. Occupational Exposure Limits (OSHA) Table Z-2
		Peak	25 mg/m ³	USA. Occupational Exposure Limits (OSHA) Table Z-2
		PEL	0.0002 mg/m ³	OSHA Specifically Regulated Chemicals/Carcinogens
		Remarks	OSHA specifically regulated carcinogen	
		STEL	0.002 mg/m ³	OSHA Specifically Regulated Chemicals/Carcinogens
		Remarks	OSHA specifically regulated carcinogen Potential Occupational Carcinogen	
		PEL	0.0002 mg/m ³	California Permissible Exposure Limits for Chemical Contaminants (Title 8, Article 107)
		STEL	0.002 mg/m ³	California Permissible Exposure Limits for Chemical Contaminants (Title 8, Article 107)
		C	0.025 mg/m ³	California Permissible Exposure Limits for Chemical Contaminants (Title 8, Article 107)

Biological Limit Values: No biological exposure limits noted for the ingredient(s)

Engineering Measures: Follow standard monitoring procedures. Immediately change contaminated clothing. Apply preventive skin protection.

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. 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.

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 impervious 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 appropriate protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at 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.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Appearance: No information available

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 1287°C (2348°F)

Boiling Point/Range: 2970°C (5378°F)

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): No information available

Flammability or Exposure Limits:

Upper: No information available

Lower: No information available

Vapor Pressure: No information available

Vapor Density: No information available

Relative Density: No information available

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

Density: No information available

Specific Gravity: No information available

Explosive Properties: No information available

Oxidizing Properties: No information available

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: No information available.

Stability: Stable under normal conditions.

Conditions to Avoid: Contact with incompatible materials

Incompatible Materials: Strong oxidizing agents

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: Causes skin irritation

Eye Contact: Causes serious eye irritation

Ingestion: Toxic if swallowed

Symptoms Related to the Physical, Chemical & Toxicological Characteristics: No information available.

Information on Toxicological Effects:

Acute Toxicity: Toxic if swallowed.

Skin Corrosion/Irritation: No information available

Serious Eye Damage/Eye Irritation: Causes serious eye damage

Respiratory Sensitization: No information available

Skin Sensitization: May cause an allergic skin reaction

Carcinogenicity: Possible human carcinogen

-**IARC:** 1 – Group 1: Carcinogenic to humans (Beryllium foil)

-**OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052):** Not regulated

-**US National Toxicology Program (NTP) Report on Carcinogens:** Not listed

Germ Cell Mutagenicity: No information available

Reproductive Toxicity: No information available

Development Toxicity: No information available

Specific Target Organ Toxicity – single exposure: No information available

Specific Target Organ Toxicity – repeated exposure: Causes damage to organs through prolonged or repeated exposure.

Aspiration Hazard: No information available

Chronic Effects: No information available

-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 and 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: Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself. Dispose of empty containers and contaminated packaging as unused product. 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: Not regulated as dangerous goods

Section 15- REGULATORY INFORMATION**US Federal Regulations:**

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical Substance Inventory.

SARA 302 Extremely Hazardous Substance: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302

SARA 311/312 Hazardous Chemical: Yes: Acute Health Hazard/Chronic Health Hazard

SARA 313 (TRI Reporting): Beryllium (foil) – CAS No: 7440-41-7

US California Proposition 65: This product contains a chemical known to the State of California to cause cancer or reproductive toxicity.

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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