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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION		PRODUCT NAME
Ge		**Germanium**
SUPPLIER: **Plasmaterials, Inc.** **1270-B Quarry Lane** **Pleasanton, CA 94566** **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

Classification:
This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Flammable Solids: Category 2

LABEL ELEMENTS:	**Hazard Statements:**
Signal Word: Warning	Flammable solid

PRECAUTIONARY STATEMENTS

Prevention:
-Keep away from heat/sparks/open flames/hot surfaces – No Smoking
-Ground/bound container and receiving equipment
-Wear protective gloves, protective clothing, eye protection and face protection
-Use explosion-proof electrical/ventilating/lighting/equipment

Fire:
-In case of fire: Use CO2, dry chemical or foam for extinction.

Hazards not otherwise classified (HNOC):
-None identified.

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Weight %
Germanium	7440-56-4	<=100

Section 4- FIRST AID MEASURES

INHALATION: Remove victim from exposure to fresh air; lie down and keep warm and quiet. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Obtain medical attention.
SKIN CONTACT: Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Obtain medical attention.
EYE CONTACT: Flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Obtain medical attention.
INGESTION: Clean mouth with water. Get medical attention.
MOST IMPORTANT SYMPTOMS/EFFECTS: No information available
NOTES TO PHYSICIAN: Treat symptomatically

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
Flash Point: No Information Available **Method:** No Information Available **Auto Ignition Temperature:** No Information Available	**Explosion Limits:** **Upper:** No Data Available **Lower:** No Data Available **Sensitivity to Mechanical Impact:** No Information Available **Sensitivity to Static Discharge:** No Information Available

Specific Hazards Arising from the Chemical:
Flammable. Combustible material.

Hazardous Combustion Products:
None known

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.

NFPA:

Health	Flammability	Instability	Physical Hazards
0	2	0	N/A

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment.

Environmental Precautions: See Section 12 for additional ecological information.

Methods for Containment & Clean Up: Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment. Sweep up or vacuum up spillage and collect in suitable container for disposal. Do not let this chemical enter the environment.

Section 7- HANDLING AND STORAGE

Handling: Avoid contact with skin and eyes. Do not breathe dust. Do not breathe vapors or spray mist. Take precautionary measures against static discharges. Use explosion-proof equipment. Use only non-sparking tools. Minimize dust generation and accumulation.

Storage: Keep in a dry, cool and well ventilated place. Keep container tightly closed. Keep away from heat and sources of ignition. Flammables area

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines: This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures: Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment:

Eye/Face Protection: Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.
Skin and Body Protection: Wear appropriate protective gloves and clothing to prevent skin exposure.
Respiratory Protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder Solid
Appearance: Dark Grey
Odor: No information available
Odor Threshold: No information available
pH: No information available
Melting Point/Range: 937°C / 1718.6°F
Boiling Point/Range: 2830°C / 5126°F
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 information available
Vapor Density: No information available
Relative Density: 5.350
Solubility: No information available
Partition coefficient; n-octanol/water: No data available
Auto Ignition Temperature: No information available
Decomposition Temperature: No information available
Viscosity: No information available
Molecular Formula: Ge
Molecular Weight: 72.64 g/mol

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: None known, based on information available.

Stability: Stable under normal conditions

Conditions to Avoid: Incompatible products.

Incompatible Materials: Strong oxidizing agents, strong acids, halogens, acids

Hazardous Decomposition Products: None under normal use conditions

Hazardous Polymerization: Hazardous polymerization does not occur

Hazardous Reactions: None under normal processing

Section 11- TOXICOLOGICAL INFORMATION

Acute Toxicity:

Product Information/Component Information: No acute toxicity information is available for this product.

Toxicological Synergistic Products: No information available

Delayed and immediate effects as well as chronic effects from short and long term exposure:

Irritation: No information available

Sensitization: No information available

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Ge	7440-56-4	Not Listed	Not Listed	Not Listed	Not Listed	Not Listed

Mutagenic Effects: No information available

Reproductive Effects: No information available

Development Effects: No information available

Teratogenicity: No information available

STOT – single exposure: None known

STOT – repeated exposure: None known

Aspiration Hazard: No information available

Symptoms/effects, both acute & delayed: No information available

Endocrine Disruptor: No information available

Other Adverse Effects: The toxicological properties have not been fully investigated.

Section 12- ECOLOGICAL INFORMATION

Ecotoxicity: Do not empty into drains

Persistence and Degradability: No information available

Bioaccumulation/Accumulation: No information available

Mobility: No information available

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Methods: Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional and national hazardous waste regulations to ensure complete and accurate classification.

Section 14- TRANSPORT INFORMATION

DOT: Not regulated

TDG: Not regulated

IATA:

UN-No: 3089

Proper Shipping Name: METAL POWDER, FLAMMABLE, N.O.S.

Hazard Class: 4.1

Packing Group: III

IMDG/IMO:

UN-No: 3089

Proper Shipping Name: METAL POWDER, FLAMMABLE, N.O.S.

Hazard Class: 4.1

Packing Group: III

Section 15- REGULATORY INFORMATION

International Inventories:

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
Germanium	X	-	X	231-164-3	-		-	-	X	X	X

Legend:
X – Listed
E – Indicates a substance that is subject of a Section 5(e) Consent order under TSCA.
F – Indicates a substance that is subject of a Section 5(f) Rule under TSCA.
N – Indicates a polymeric substance containing no free-radical initiator in its inventory name but is considered to cover the designated polymer made with any free-radical initiator regardless of the amount used.
P – Indicates a commenced PMN substance.
R – Indicates a substance that is the subject of a Section 6 risk management rule under TSCA.
S – Indicates a substance that is identified in a proposed or final Significant New Use Rule.
T – Indicates a substance that is the subject of a Section 4 test rule under TSCA.
XU – Indicates a substance exempt from reporting under the Inventory Update Rule, i.e. Partial Updating of the TSCA Inventory Data Base Production and Site Reports (40 CFR 710(B)).
Y1 – Indicates an exempt polymer that has a number-average molecular weight of 1,000 or greater.
Y2 – Indicates an exempt polymer that is a polyester and is made only from reactants included in a specified list of low concern reactants that comprises one of the eligibility criteria for the exemption rule.

US Federal Regulations:

TSCA 12(b): Not applicable
SARA 313: Not applicable
SARA 311/312 Hazardous Categorization:
- **Acute Health Hazard:** No
- **Chronic Health Hazard:** No
- **Fire Hazard:** Yes
- **Sudden Release of Pressure Hazard:** No
- **Reactive Hazard:** No

Clean Water Act: Not applicable
Clean Air Act: Not applicable
OSHA (Occupational Safety and Health Administration)**:** Not applicable
CERCLA: Not applicable
California Proposition 65: This product does not contain any Proposition 65 chemicals
State Right-to-Know: Not applicable
US Department of Transportation:
- **Reportable Quantity (RQ):** N
- **DOT Marine Pollutant:** N
- **DOT Severe Marine Pollutant:** N

US Department of Homeland Security: This product does not contain any DHS chemicals.
Other International Regulations:
- **Mexico – Grade:** No information available
- **Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all the information required by the CPR**
  - **WHMIS Hazard Class:** B4 Flammable Solid

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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