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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION GeO2		PRODUCT NAME Germanium Dioxide
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

Classification: This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)	
Acute Oral Toxicity: Category 4	
Acute Inhalation Toxicity – Dusts and Mists: Category 4	
LABEL ELEMENTS: Signal Word: Warning	Hazard Statements: -Harmful if swallowed -Harmful if inhaled



PRECAUTIONARY STATEMENTS

Prevention:

- Wash face, hands and any exposed skin thoroughly after handling
- Do not eat, drink or smoke when using this product
- Wear protective gloves, protective clothing, eye protection and face protection
- Avoid breathing dust/fume/gas/mist/vapors/spray
- Use only outdoors or in a well ventilated area

Inhalation:

- IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a Poison Center or doctor/physician if you feel unwell.

Ingestion:

- IF SWALLOWED: Call a Poison Center or doctor/physician if you feel unwell. Rinse mouth.

Disposal:

- Dispose of contents/containers to an approved waste disposal plant.

Hazards not otherwise classified (HNOC):

- None identified.

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Weight%
Germanium Oxide	1310-53-8	>95

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 and drink afterwards plenty of water. Get medical attention if symptoms persist.

MOST IMPORTANT SYMPTOMS/EFFECTS: No information available

NOTES TO PHYSICIAN: Treat symptomatically

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:

Carbon Dioxide (CO₂); Dry Chemical, Chemical Foam

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:

Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products:

Thermal decomposition can lead to release of irritating gases and vapors

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:

<u>Health</u>	<u>Flammability</u>	<u>Instability</u>	<u>Physical Hazards</u>
2	0	0	N/A

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Ensure adequate ventilation. Use personal protective equipment. Avoid dust formation

Environmental Precautions: Should not be released into the environment. See Section 12 for additional ecological information.

Methods for Containment & Clean Up: Sweep up or vacuum up spillage and collect in suitable container for proper disposal. Keep in suitable, closed containers for disposal. Do not let this chemical enter the environment.

Section 7- HANDLING AND STORAGE

Handling: Ensure adequate ventilation. Wear personal protective equipment. Do not get in eyes, on skin, or on clothing. Avoid ingestion and inhalation. Avoid dust formation.

Storage: Keep in a dry, cool and well ventilated place. Keep container tightly closed.

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. Ventilation systems.

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 long sleeved clothing to prevent skin exposure.

Respiratory Protection: Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Wear a NIOSH/MSHA or European Standard EN 149 approved full-face piece airline respirator in the positive pressure mode with emergency escape provisions.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety practice.

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Powder Solid

Appearance: White

Odor: Odorless

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 1115°C / 2039°F

Boiling Point/Range: No information available

Flash Point: No information available

Evaporation Rate: Not applicable

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: Not applicable

Relative Density: No information available

Solubility: Slightly soluble in water

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

Auto Ignition Temperature: No information available

Decomposition Temperature: No information available

Viscosity: Not applicable

Molecular Formula: GeO₂

Molecular Weight: 104.59

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: None known, based on information available.

Stability: Stable under recommended storage conditions.

Conditions to Avoid: Incompatible products. Avoid dust formation. Excess heat.

Incompatible Materials: Oxidizing agents

Hazardous Decomposition Products: Thermal decomposition can lead to release of irritating gases and vapors.

Hazardous Polymerization: Hazardous polymerization does not occur

Hazardous Reactions: None under normal processing

Section 11- TOXICOLOGICAL INFORMATION

Acute Toxicity:

Product Information/Component Information:

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Germanium Oxide	1250 mg/kg (Rat)	Not Listed	1420 mg/m ³ (Rat) 4 h

Toxicological Synergistic Products: No information available

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

Irritation: May cause irritation

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
GeO ₂	1310-53-8	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: Insoluble in water

Bioaccumulation/Accumulation: No information available

Mobility: Is not likely mobile in the environment due to its low water solubility

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: Not regulated

IMDG/IMO: Not regulated

Section 15- REGULATORY INFORMATION

All of the components in the product are on the following Inventory lists: X = Listed

International Inventories:

Component	TSCA	DSL	NDSL	EINECS	ELINCS	NLP	PICCS	ENCS	AICS	IECSC	KECL
GeO2	X	X	-	215-180-8	-		-	X	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: Yes

Chronic Health Hazard: No

Fire Hazard: No

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: D1B Toxic Materials



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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