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SAFETY DATA SHEET

Section 1- IDENTIFICATION

COMPOSITION Gd		PRODUCT NAME Gadolinium
SUPPLIER: Plasmaterials, Inc. 2268 Research Drive Livermore, CA 94550 Ph: 925-447-4030	RECOMMENDED USE: Laboratory Chemicals Scientific Research	EMERGENCY TELEPHONE NUMBERS US: 800-424-9300 International: 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)	
PHYSICAL HAZARDS: Substances and mixtures, which in contact with water, emit flammable gases: Category 3 (H261)	
HEALTH HAZARDS: Not Classified	
Environmental Hazards: Not Classified	OSHA Defined Hazards: Not Classified
LABEL ELEMENTS: Signal Word: Warning	
	
HAZARD STATEMENTS	
-H261: In contact with water releases flammable gas.	
PRECAUTIONARY STATEMENTS	
-P231+P232: Handle under inert gas. Protect from moisture.	
-P264: Wash face, hands and any exposed skin thoroughly after handling	
-P280: Wear protective gloves/protective clothing/eye protection/face protection.	
-P370+P378: In case of fire, use dry sand, dry chemical or alcohol-resistant foam to extinguish.	
-P402+P404: Store in a dry place. Store in a closed container.	
-P501: Dispose of contents/container to an approved waste disposal plant.	
Hazards not otherwise classified (HNOC):	
-None identified	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT	CAS-No	Molecular Weight
Gadolinium	7440-54-2	157.25 g/mol

Section 4- FIRST AID MEASURES

GENERAL ADVICE: Consult a physician. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the physician in attendance.

INHALATION: Remove victim from exposure to fresh air. Give oxygen if breathing is difficult. If not breathing, give artificial respiration. Consult a physician.

SKIN CONTACT: Brush off loose particles. Wash off with soap and plenty of water. Consult a physician.

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 or persists.

INGESTION: Rinse mouth with water. Never give anything by mouth to an unconscious person. Consult a physician.

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

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT

NEEDED: No data available

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media:

Dry Powder

Unsuitable Extinguishing Media:

No information available

Specific Hazards Arising from the Chemical:

Gadolinium Oxide, Gases hazardous to health may be formed

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.

General Fire Hazards:

No data available

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Evacuate personnel to safe areas. Wear appropriate protective equipment and clothing during clean-up. Avoid dust formation. Avoid breathing dust, vapors, mist or gas. 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.

Methods for Containment & Clean Up:

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. Do not flush with water. Keep in suitable, closed containers for disposal. For waste disposal, see Section 13.

Section 7- HANDLING AND STORAGE

Handling: 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. Keep away from sources of ignition. No smoking. Wear appropriate personal protection equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling.

Storage: Keep container tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Storage Class (TRGS 510): 4.3: Hazardous materials, which set free flammable gases upon contact with water.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Occupational Exposure Limits/Components with Workplace Control Parameters: No exposure limit values noted for substance(s)

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

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: Safety glasses with side shields. Use equipment for eye protection tested and approved under appropriate standards such as NIOSH (US) or EN 166 (EU).

Skin and Body Protection: Handle with 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.

Flame retardant protective clothing, Impervious 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: Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EU 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 respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of Environmental Exposure: Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

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 data available

Odor Threshold: No data available

pH: No data available

Melting Point/Range: 1,313°C (2,395°F) – lit.

Initial Boiling Point/Range: 3,273°C (5,923°F) – lit.

Flash Point: No data available

Evaporation Rate: No data available

Flammability (solid,gas): No data available

Flammability Limits:

Upper: No data available

Lower: No data available

Explosive Limits:

Upper: No data available

Lower: No data available

Vapor Pressure: No data available

Vapor Density: No data available

Relative Density: 7.886 g/mL at 25°C (77°F)

Solubility (Water): Insoluble

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

Auto Ignition Temperature: No data available

Decomposition Temperature: No data available

Viscosity: No data available

Explosive Properties: No data available
Oxidizing Properties: No data available

Section 10- STABILITY AND REACTIVITY

Reactive Hazard: No data available

Stability: Stable under recommended storage conditions.

Possibility of Hazardous Reactions: Reacts violently with water.

Conditions to Avoid: Exposure to moisture. Contact with incompatible products.

Incompatible Materials: Strong oxidizing agents, water, strong acids, oxygen,

Hazardous Decomposition Products:

Hazardous decomposition products formed under fire conditions - Gadolinium Oxide
Other decomposition products - No data available

Section 11- TOXICOLOGICAL INFORMATION

Toxicological Effects:

Acute Toxicity: No data available

Inhalation: No data available.

Dermal: No data available

Skin Corrosion/Irritation: No data available

Serious eye damage/irritation: No data available

Respiratory or Skin Sensitization: No data available

Carcinogenicity: This product is not considered to be a carcinogen by IARC, ACGIH, NTP or OSHA.

-IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen.

-NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen.

-OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen.

Mutagenic Effects: No data available

Reproductive Effects: No data available

Development Effects: No data available

Specific Target Organ Toxicity – single exposure: No information available

Specific Target Organ Toxicity – repeated exposure: No information available

Aspiration Hazard: No data available

Additional Information: RTECS: Not 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 & 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: Burn in a chemical incinerator equipped with an afterburner and scrubber

but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dispose of contaminated packaging as unused product. Dispose of contents/container in accordance with local/regional/national/international regulations.

Section 14- TRANSPORT INFORMATION

DOT:

UN-No: 3208
Proper Shipping Name: Metallic substance, water-reactive, n.o.s. (Gadolinium)
Hazard Class: 4.3
Packing Group: III
Poison Inhalation Hazard: No

IATA:

UN-No: 3208
Proper Shipping Name: Metallic substance, water-reactive, n.o.s. (Gadolinium)
Hazard Class: 4.3
Packing Group: III

IMDG/IMO:

UN-No: 3208
Proper Shipping Name: Metallic substance, water-reactive, n.o.s. (Gadolinium)
Hazard Class: 4.3
Packing Group: III
EMS-No: F-G, S-N

Section 15- REGULATORY INFORMATION

US Federal Regulations:

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

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

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

US New Jersey Right-to-Know Act: Gadolinium (CAS No: 7440-54-2)

US Pennsylvania RTK – Hazardous Substances: Gadolinium (CAS No: 7440-54-2)

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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