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SAFETY DATA SHEET

Section 1- IDENTIFICATION		
COMPOSITION Ta		PRODUCT NAME Tantalum
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	
HEALTH HAZARDS: Physical Hazards: Flammable solids Category 2 Health Hazard: Not Classified	ENVIRONMENTAL HAZARDS: Not Classified OSHA Defined Hazards: Not Classified
LABEL ELEMENTS: Signal Word: Warning	
Hazard Statements: Flammable solid	
	
PRECAUTIONARY STATEMENTS	
Prevention:	
<ul style="list-style-type: none"> -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 	
Response:	
-In case of fire: Use appropriate media to extinguish	
Storage:	
-Store away from incompatible materials	
Disposal:	
-Dispose of waste and residues in accordance with local authority requirements	
Hazards not otherwise classified (HNOC):	
-None identified.	

Section 3- COMPOSITION/INFORMATION ON INGREDIENTS		
COMPONENT	CAS-No	Weight%
Tantalum	7440-25-7	99.9-100

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.

INHALATION: Remove victim from exposure to fresh air and keep at rest in a position comfortable for breathing. Call a doctor/physician if symptoms develop or persist or are experiencing respiratory difficulties.

SKIN CONTACT: Remove contaminated clothing. Wash skin off with soap and plenty of water. Seek medical attention if irritation develops or persists.

EYE CONTACT: Do not rub eyes. Immediately 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. Get medical attention if symptoms occur.

MOST IMPORTANT SYMPTOMS/EFFECTS: Dust may irritate the respiratory tract, skin and eyes.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED: Provide general supportive measures and treat symptomatically. Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

Section 5- FIREFIGHTING MEASURES

Suitable Extinguishing Media: Dry sand, sodium chloride powder, graphite powder or Met-L-X powder	Unsuitable Extinguishing Media: Do not use water jet as an extinguisher as this will spread the fire. Carbon Dioxide (CO ₂)
Specific Hazards Arising from the Chemical: 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.	
Fire Fighting Instructions: In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.	
Specific Methods: Use standard firefighting procedures and consider the hazards of other involved materials.	
General Fire Hazards: Flammable solid	

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection see section 8.

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

Methods for Containment & Clean Up:

- The product is immiscible with water and will spread on the water surface. Stop the flow of the material if this is without risk.
- Eliminate all ignition sources (no smoking, flares, sparks or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools.
- Collect dust using a vacuum cleaner equipped with a HEPA filter.
- Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Avoid the generation of dusts during clean up. Following product recovery, flush area with water.
- Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Clean surface thoroughly to remove residual contamination.
- Never return spills to original containers for re-use. For waste disposal, see Section 13.

Section 7- HANDLING AND STORAGE

Handling: Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Provide adequate precautions such as electrical grounding and bonding or inert atmospheres. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. When using do not smoke. Explosion-proof general and local exhaust ventilation. Avoid prolonged exposure. Wear appropriate personal protection equipment. Observe good industrial hygiene practices. Wash hands thoroughly after handling.

Storage: Store in a cool, dry and well ventilated place out of direct sunlight. Store in tightly closed container. Keep away from heat, sources of ignition, sparks and open flame. Keep in an area equipped with sprinklers. Store away from incompatible materials. (see Section 10)

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Component	CAS-No	OSHA Limits for Air Contaminants (Table Z-1)	US NIOSH Pocket Guide to Chemical Hazards
Tantalum	7440-25-7	PEL: 5 mg/m ³ (Dust)	TWA: 5 mg/m ³ (Dust) STEL: 10 mg/m ³ (Dust)

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

Control Parameters: Follow standard monitoring procedures.

Personal Protective Equipment:

Eye/Face Protection: Wear appropriate protective eyeglasses or chemical safety goggles with side shields.

Skin and Body Protection: Wear appropriate chemical resistant gloves to prevent skin exposure. Suitable gloves can be recommended by the glove supplier. Wear suitable protective clothing.

Respiratory Protection: Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.

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

Appearance:

Physical State: Solid

Color: Not available

Odor: Not Applicable

Odor Threshold: No information available

pH: No information available

Melting Point/Range: 5424.8°F (2996 °C)

Initial Boiling Point/Range: 9804.2 °F (5429 °C)

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): Flammable solid

Flammability Limits:

Upper: No data available

Lower: No data available

Explosive Limits:

Upper: No data available

Lower: No data available

Vapor Pressure: No information available

Vapor Density: No information available

Relative Density: No information available

Solubility (Water): Insoluble
Partition coefficient; n-octanol/water: No information available
Auto Ignition Temperature: No information available
Decomposition Temperature: No information available
Viscosity: No information available
Density: 16.69 g/cm³ at 20 °C (68 °F)
Explosive Properties: No information available
Oxidizing Properties: No information available
Molecular Formula: Ta
Molecular Weight: 180.95 g/mol

Section 10- STABILITY AND REACTIVITY

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

Stability: Stable under normal conditions.

Possibility of Hazardous Reactions: No information available.

Conditions to Avoid: Heat, flame and sparks. Contact with incompatible products.

Incompatible Materials: Strong oxidizing agents, fluorine

Hazardous Decomposition Products: No information available

Section 11- TOXICOLOGICAL INFORMATION

Information on likely Routes of Exposure:

Inhalation: Dust may irritate respiratory system. Prolonged inhalation may be harmful.

Skin Contact: Dust or powder may irritate skin

Eye Contact: Dust may cause eye irritation

Ingestion: Expected to be a low ingestion hazard

Symptoms Related to the Physical, Chemical & Toxicological Characteristics: Dust may irritate the respiratory system, skin and eyes.

Information on Toxicological Effects:

Acute Toxicity: No data available

Skin Corrosion/Irritation: Prolonged skin contact may cause temporary irritation.

Serious Eye Damage/Eye Irritation: Direct contact with eyes may cause temporary irritation.

Respiratory Sensitization: No data available

Skin Sensitization: No data available

Carcinogenicity:

Component	CAS-No	IARC	NTP	ACGIH	OSHA
Tantalum	7440-25-7	Not Listed	Not Listed	Not Listed	Not Listed

Mutagenic Effects: No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic

Reproductive Effects: No data available

STOT – single exposure: No data available

STOT – repeated exposure: No data available

Aspiration Hazard: No data available

Chronic Effects: Prolonged inhalation may be harmful.

Section 12- ECOLOGICAL INFORMATION

Ecotoxicity: 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 data available

Bioaccumulation/Accumulation: No data available

Mobility in soil: No data available

Other Adverse Effects: No data available

Section 13- DISPOSAL CONSIDERATIONS

Waste Disposal Instructions: Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/containers in accordance with local, regional, national and international hazardous waste regulations.

Local Disposal Regulations: Dispose in accordance with all applicable regulations

Waste from Residues/Unused Products: Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (See Disposal Instructions)

Contaminated Packaging: Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

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: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b): Not regulated

U.S. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not Listed

SARA 302 Extremely Hazardous Substance: Not Listed

SARA 313 (TRI reporting): Not regulated

SARA 311/312 Hazardous Chemical: Yes

SARA Hazard Categories:

Immediate Hazard: No

Delayed Hazard: No

Fire Hazard: Yes

Pressure Hazard: No

Reactive Hazard: No

Safe Drinking Water Act (SWDA): Not regulated

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

CERCLA Hazardous Substance List (40 CFR 302.4): Not Listed

US California Proposition 65 (CA Safe Drinking Water & Toxic Enforcement Act of 1986): This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US California Controlled Substances. CA Dept of Justice (California Health & Safety Code Section 11100): Not Listed

US Massachusetts RTK – Substance List: Tantalum (CAS 7440-25-7)

US New Jersey Worker & Community Right-to-Know Act: Not regulated

US New Jersey RTK-Substances: Listed substance, Tantalum (CAS 7440-25-7)

US Pennsylvania RTK – Hazardous Substances: Tantalum (CAS 7440-25-7)

US Pennsylvania Worker & Community Right-to-Know Law: Tantalum (CAS 7440-25-7)

US Rhode Island RTK: Not regulated

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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