


ELECTRONIC SPACE PRODUCTS INTERNATIONAL

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MATERIAL SAFETY DATA SHEET
I PRODUCT IDENTIFICATION

Trade Name: Tantalum
Formula: Ta

Chemical Family: Metal
CAS #: 7440-25-7

II HAZARDOUS INGREDIENTS

Hazardous Component	%	OSHA/PEL	ACGIH/TLV	Sec. 302	Sec. 304	Sec. 313
Tantalum	0-100	5 mg/m ³	5 mg/m ³	No	No	No

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

III PHYSICAL DATA

Boiling Point:	5425 °C	Melting Point:	2996 °C
Vapor Density:	N/A	Vapor Pressure:	0 @ 20 °C (mm/Hg)
% Volatiles by Weight:	N/A	Solubility in H₂O:	Insoluble
Appearance and Odor:	Gray to bluish, hard, malleable, ductile, no odor.	Specific Gravity:	16.69 gm/cc

IV FIRE AND EXPLOSION HAZARDS DATA

Flash Point (Method used): N/A
Flammable Limits: Upper: N/A **Lower:** <0.2 oz/ft³ (powder)

Autoignition Temperature: N/A

Extinguishing Media: To extinguish a metal powder fire use dry sand, dry graphite or other class "D" fire extinguishing

powder. For fires involving bulk forms, use extinguishing media suitable for surrounding materials and type of fire.

Special Fire Fighting Procedures: Firefighters must wear full face, self-contained breathing apparatus with full protective clothing to prevent contact with skin and eyes. Fumes from fire are hazardous. Isolate runoff to prevent environmental pollution.

Unusual Fire & Explosion Hazard: When heated, all forms of the metal (ingot, foil, powder) will react with water or steam to produce flammable/explosive H₂ (hydrogen gas). Avoid creating fine dusts, because as a powder, this product is capable of creating a dust explosion.

V HEALTH HAZARD INFORMATION

Effects Of Exposure:

Acute Effects:

Inhalation: No information available on significant adverse effects.

Ingestion: Evidence suggests low toxicity potential due to poor absorption by the oral route.

Skin: May cause irritation.

Eye: May cause mild irritation.

Other: Has anticoagulant effect when given intravenously.

Chronic Effects:

Inhalation: Repeated or prolonged exposure to tantalum alloys may have caused a mild fibrosis and chronic rhinitis in exposed workers and may play a role in producing "hard metal pneumoconiosis" in workers exposed to tantalum as well as other metals.

Ingestion: Animal studies indicate absorption may occur.

Skin: No data available.

Eye: No chronic effects are reported.

Target Organs: No significant target effects reported.

Carcinogenicity: NTP: No IARC: No OSHA: No

EMERGENCY AND FIRST AID PROCEDURES:

INHALATION: Breathing difficulty caused by inhalation of dust or fume requires removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical assistance at once.

INGESTION: Swallowing metal powder or dust can be treated by having the affected person swallow large quantities of water and attempting to induce vomiting if conscious. Obtain medical assistance at once.

SKIN: Skin cuts and abrasions can be treated by standard first aid. Skin contamination with dust or powder can be removed by washing with soap and water. If irritation persists obtain medical assistance.

EYES: Dust or powder should be flushed from the eyes with copious amounts of clean water. If irritation persists obtain medical assistance. Contact lenses should not be worn if working with metal dust sand powders.

VI REACTIVITY DATA

Stability: Stable

Conditions to Avoid: None reported

Incompatibility (Material to Avoid): Tantalum powders react violently with fluorine, chlorine and bromine trifluoride. Contact of metallic dust with strong oxidizers may cause fire/explosions.

Hazardous Decomposition Products: Various elemental metals and oxides may be generated from melting or gross handling operations.

Hazardous Polymerization: Will not occur.

VII SPILL OR LEAK PROCEDURES

Steps to be Taken in Case Material is Released or Spilled: In solid form this material poses no special clean-up problems. If this material is in powder or dust form, clean-up should be conducted with a vacuum system utilizing a high efficiency particulate air filtration system. Caution should be taken To minimize airborne generation of powder or dust and avoid contamination of air and water. Properly label all materials collected in waste container.

Waste Disposal Method: In accordance with Local, State and Federal Waste Disposal Regulations.

Environmental Hazards: In solid form this material poses no special environmental problems. Metal powders or dusts may have significant impact on air and water quality. Airborne emissions, spills and releases to the environment (discharge to streams, sewer systems, ground water, surface soil, etc) should be controlled immediately. If such potential for a spill or release exists it is advisable to develop an emergency spill response plan.

VIII SPECIAL PROTECTION INFORMATION

Respiratory Protection (Specify Type): Use NIOSH approved respirators as specified by an industrial hygienist or qualified safety professional. Lung function tests are recommended for users of negative pressure devices.

Ventilation: Local exhaust ventilation should be used to control exposure to airborne dust and fume whenever possible.

Protective Gloves: Wear gloves to prevent metal cuts and skin abrasions particularly during handling of wrought forms, solid metal, sheet, strip or tube.

Eye Protection: Wear safety glasses when risk of eye injury is present particularly during machining, grinding, welding, powder handling, etc.

Other Protective Equipment: Protective clothing such as uniforms, disposable coveralls, safety shoes, etc may be required during metal handling operations as appropriate to the circumstances of exposure.

IX SPECIAL PRECAUTIONS

Precautions to Be Taken in Handling and Storage: Store and handle in accordance with all current regulations and standards. Store finely-divided material in original shipping container or in metal containers. Store finely-divided material away from oxidizers and mineral acids.

Work Practices: Implement engineering and work practice controls to reduce and maintain concentration of exposure. Use good housekeeping and sanitation practices. Do not use tobacco or food in work area. Wash thoroughly before eating or smoking. Do not blow dust off clothing or skin with compressed air. Maintain eyewash capable of sustained flushing,

safety drench shower and facilities for washing.

Toxic Substance Control Abstract (TSCA): Listed, EPA flag: XU

The above information is believed to be correct, but does not purport to be all inclusive and shall be used only as a guide. ESPI shall not be held liable for any damage resulting from handling or from contact with the above product.

Issued by: S. Dierks
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