

Plasmaterials, Inc.
 2268 Research Drive
 Livermore, CA 94550
 Ph: (925) 447-4030 Fx: (925) 447-4031
<http://plasmaterials.com>

SAFETY DATA SHEET

Section 1- IDENTIFICATION

PRODUCT NAME Titanium Tungsten		
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

Physical Hazards: Not Classified	Environmental Hazards: Not Classified
Health Hazards: Serious eye damage/eye irritation: Category 2B (H320)	OSHA Defined Hazards: Not Classified
LABEL ELEMENTS: Signal Word: Warning	Hazard Symbol: None

HAZARD STATEMENTS

-H320: Causes eye irritation
 -The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

PRECAUTIONARY STATEMENTS

-P264: Wash face, hands and any exposed skin thoroughly after handling
 -P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lens, if present and easy to do. Continue rinsing.
 -P337+P313: If eye irritation persists: Get medical advice/attention
 -P420: Store away from other materials
 -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	
Titanium Tungsten	58397-70-9	
Hazardous Components	CAS-No	Concentration %
Titanium	7440-32-6	1-40
Tungsten	7440-33-7	60-99

Section 4- FIRST AID MEASURES

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

Skin Contact: Wash off with soap and plenty of water while removing all contaminated clothes and shoes. Consult a physician if irritation develops or persists.

Eye Contact: Immediately flush eyes with lukewarm water, lifting upper and lower lids, for at least 15 minutes. Remove contact lens, if present and easy to do. Continue rinsing. Consult a physician if irritation persists.

Ingestion: Rinse mouth with water. Do not induce vomiting. Never give anything by mouth to an unconscious person. Consult a physician if irritation develops or persists.

Most Important Symptoms/Effects: Nausea. Irritation of eyes. Exposed individuals may experience eye tearing, redness and discomfort. Coughing.

Indication of any Immediate Medical Attention and Special Treatment Needed: No data available. Keep victim under observation. Symptoms may be delayed.

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.
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.	
General Fire Hazards: No unusual fire or explosion hazards noted.	
Specific Methods: Move containers from fire area if you can do so without risk. Use standard firefighting procedures and consider the hazards of other involved materials.	

Section 6- ACCIDENTAL RELEASE MEASURES

Personal Precautions: Keep unnecessary personal away. Keep people away from and upwind of spill/leak. Ensure adequate ventilation. Unless wearing appropriate protective equipment and protective clothing during clean up, do not touch damaged containers or spilled material. For personnel protection see Section 8. Local authorities should be advised if significant spillages cannot be contained.
Environmental Precautions: Avoid discharge into drains, water courses or onto the ground.
Methods for Containment & Clean Up -Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. -Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). 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: Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personnel protection equipment. Observe good industrial hygiene practices.
Storage: Store in original tightly closed containers. Store away from incompatible materials.

Section 8- EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Guidelines:

Occupational Exposure Limits:

Tungsten	7440-33-7	TWA	3 mg/m ³	USA.ACGIH Threshold Limit Values (TLV)
	Form	Respirable function		
		STEL	10 mg/m ³	USA.NIOSH recommended exposure limits
		TWA	5 mg/m ³	USA.NIOSH recommended exposure limits
		PEL	2 mg/m ³	USA.California Code of Regulations, Title 8 Section 5155, Airborne Contaminants

Engineering Measures: Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station. Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of the workday.

Personal Protective Equipment:

Eye/Face Protection: Wear safety glasses with side shields or goggles. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN166 (EU).

Skin and Body Protection: Handle with chemical resistant 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.

Wear suitable protective clothing. Choose body protection in relation to its type, to the concentration and amount of the dangerous substances, and to the specific workplace. The type of protective equipment must be selected according to the concentration and amount of dangerous substance at the specific workplace.

Respiratory Protection: Respiratory protection is not required. Where protection from nuisance levels of dusts are desired, use type N95 (US) or type P1 (EN 143) dust masks. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Section 9- PHYSICAL AND CHEMICAL PROPERTIES

Physical State: Solid

Odor: No information available

Odor Threshold: No information available

pH: No information available

Melting Point/Freezing Point: 1,668°C / 3,034.4°F (estimated)

Boiling Point/Range: 3,287°C / 5,948.6°F (estimated)

Flash Point: No information available

Evaporation Rate: No information available

Flammability (solid,gas): No information available

Flammability or 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

Water 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

Explosive Properties: No information available

Oxidizing Properties: No information available

Specific Gravity: 14.62 (estimated)

Section 10- STABILITY AND REACTIVITY

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

Stability: Stable under recommended storage conditions.

Conditions to Avoid: Incompatible materials

Incompatible Materials: Chlorine, fluorine

Hazardous Decomposition Products: No information available

Hazardous Polymerization: No information available

Hazardous Reactions: No information available

Section 11- TOXICOLOGICAL INFORMATION

Information on likely Routes of Exposure:

Inhalation: Prolonged inhalation may be harmful

Skin Contact: No adverse effects due to skin contact are expected

Eye Contact: Causes eye irritation

Ingestion: Expected to be a low ingestion hazard

Symptoms Related to the Physical, Chemical and Toxicological Characteristics:

Nausea. Irritation of eyes. Exposed individuals may experience eye tearing, redness and discomfort.
Coughing

Information on Toxicological Effects:

Acute Toxicity: No information available

Inhalation: No information available

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

Serious eye damage/irritation: Causes eye irritation.

Respiratory or Skin Sensitization: No information available

Carcinogenicity: Not classifiable as to carcinogenicity to humans.

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

Component	CAS-No	IARC	NTP	OSHA
Titanium Tungsten	58397-70-9	Not Listed	Not Listed	Not Listed

Germ Cell Mutagenicity: No information available

Reproductive Effects: No information available

Development Effects: No information available

Specific Target Organ Toxicity – single exposure: No information available

Specific Target Organ Toxicity – repeated exposure: No information available

Aspiration Hazard: No information available

Chronic Effects: Prolonged inhalation may be harmful.

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 and 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: 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 in accordance with all applicable regulations.

Section 14- TRANSPORT INFORMATION

DOT: Not regulated as dangerous goods

IATA: Not regulated as dangerous goods

IMDG/IMO: Not regulated as dangerous goods

Section 15- REGULATORY INFORMATION

US Federal Regulations:

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt.D): Not regulated

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

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

SARA 304 Emergency Release Notification: Not regulated

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: No

SARA Hazard Categories:

Immediate Hazard: Yes

Delayed Hazard: No

Fire Hazard: No

Pressure Hazard: No

Reactive Hazard: No

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

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.

US California Candidate Chemicals List Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3 subd. (a)): Tungsten (CAS-No: 7440-33-7)

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.

The information in this SDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, expressed or implied, regarding the accuracy or correctness.

The conditions or methods of handling, storage, use and disposal of the product are beyond our control and may be beyond our knowledge. For this and other reasons, we do not assume responsibility and expressly disclaim liability for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

REVISION: 10-18-17