

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

MATERIAL SAFETY DATA SHEET

Section 1- PRODUCT IDENTIFICATION

COMPOSITION W	PRODUCT NAME Tungsten
-------------------------	---------------------------------

Section 2- HAZARDOUS INGREDIENTS

Note: Products under normal conditions do not represent an inhalation, ingestion or contact health hazard.

MATERIAL OR COMPONENT	CAS NUMBER	WT%	EXPOSURE LIMITS	
			OSHA PEL (Mg/M3)	ACGIH TLV(MG/M3)
Tungsten	7440-33-7	100	5mg/m3	5mg/m3

Section 3- PHYSICAL DATA

MATERIAL IS (AT NORMAL CONDITIONS) <input type="checkbox"/> Liquid <input type="checkbox"/> Solid <input type="checkbox"/> Gas <input type="checkbox"/> Other	APPEARANCE AND ODOR Steely gray to white, cuttable,forgeable & spinnable metal; odorless
MELTING POINT (BASE METAL) 3410C	SPECIFIC GRAVITY 19.3

Section 4- FIRE AND EXPLOSION

Flash Point (Method Used) N/A	Flammable Limits Hazard as a fine powder	LEL N/A	UEL N/A
EXTINGUISHING MEDIA DO NOT USE WATER ON METAL FIRES – Use dry chemical, CO2, sand, graphite			
SPECIAL FIRE FIGHTING PROCEDURES Requires full face self contained breathing apparatus with full protective clothing to prevent contact with skin and eyes.			
UNUSUAL FIRE AND EXPLOSION HAZARDS Material may emit toxic fumes if involved in fire. Moderate fire hazard in the form of dust when exposed to flame. May ignite on heating air (finely divided metal). Stable in dry air at ordinary temperatures. Powdered tungsten can be pyrophoric.			

Section 5- REACTIVITY DATA

STABILITY Stable	INCOMPATIBILITY (MATERIALS TO AVOID) Air, oxidants
CONDITIONS TO AVOID Heat, steam, air, incompatible materials	
HAZARDOUS DECOMPOSITION PRODUCTS WO2; WO3	

Section 6- HEALTH HAZARD GUIDE

MAJOR EXPOSURE HAZARD

Inhalation **Skin** **Skin Absorption** **Eye Contact** **Ingestion**

EFFECTS OF OVEREXPOSURE

INHALATION: May be irritating to the respiratory tract.

SKIN CONTACT: May be mechanically irritating to the skin.

EYE CONTACT: Mechanical irritation, may cause redness and watering of the eyes.

OTHER: Industrially this element does not constitute an important health hazard. Exposure is related chiefly to the dust. Recent studies have failed to indicate any serious toxic effect following inhalation or ingestion of various tungsten compounds, although heavy exposure to the dust or the ingestion of large amounts of the soluble compounds produces a certain rate of mortality in experimental animals.

MEDICAL CONDITIONS GENERALLY AGGRAVATED BY EXPOSURE: Respiratory disorders

CARCINOGENICITY: None

EMERGENCY & FIRST AID PROCEDURES

INHALATION: Remove victim from exposed area to fresh air. Give oxygen if breathing is difficult and seek medical attention.

SKIN CONTACT: Remove contaminated clothing and shoes immediately. Brush material off skin and wash affected area with mild soap and water. Seek medical attention.

EYE CONTACT: Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes. Seek medical attention.

INGESTION: Give 1-2 glasses of milk or water and induce vomiting; seek medical attention. Never induce vomiting or give anything by mouth to an unconscious person.

Section 7- SPILL OR LEAK PROCEDURES

SPILL OR LEAK PROCUDRES

Wear a self contained breathing apparatus and full protective clothing. Isolate the area where the spill occurred and insure that proper ventilation is available. Vacuum up spill using a high efficiency unit and place in a container for proper disposal. Take care not to raise dust.

WASTE DISPOSAL METHODS

Observe all federal, state and local regulations when storing or disposing of this substance.

Section 8- SPECIAL PROTECTION

RESPIRATORY

NIOSH approved dust-mist-fume cartridge respirator.

VENTILATION

Local Exhaust: Maintain below TLV levels. Handle in a dry, inert atmosphere.

Mechanical ventilation is recommended.

EYE PROTECTION & PROTECTIVE CLOTHING

Use safety glasses. Wear neoprene protective gloves. Use protective gear suitable to prevent contamination.

Section 9- SPECIAL PRECAUTIONS

The information in this MSDS was obtained from sources, which we believe are reliable. However, the information is provided without any representation or warranty, express 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.