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## Material Safety Data Sheet

Identity: Tungsten Crucible

Formula: W

### SECTION I - GENERAL INFORMATION

Manufacturer: Advanced Engineering Materials Limited (AEM)

The information below is believed to be accurate and represents the best information available to AEM. However, AEM makes no warranty, expressed or implied with respect to such information and assumes no liability resulting from its use.

### SECTION II - HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

CAS #	OSHA PEL	ACGIH TLV	%
7440-33-7	N/A	Insoluble as W, 5mg/m <sup>3</sup> Soluble as W, 1mg/m <sup>3</sup>	99-100

### SECTION III - PHYSICAL CHEMICAL CHARACTERISTICS

Physical States: Powder/Solid

Boiling Point: 5660°C

Specific Gravity (H<sub>2</sub>O=1): 19.3

Melting Point: 3410°C

Vapor Pressure: essentially 0 at 20°C

Evaporation Rate: N/A

Vapor Density: N/A

Solubility in water: Insoluble

Percent Volatile: N/A

*Appearance and odor:* Gray-white powder and pieces, odorless

### SECTION IV - FIRE AND EXPLOSION HAZARD DATA:

*Flash Point:* N/A

*Special Fire Fighting Procedures:*

Tungsten powder may present a fire or explosion hazard under favoring conditions of particle size, dispersion and strong ignition source. Cover burning material with an inert substance, such as dry sand, salt, or limestone to exclude oxygen. Use dry chemical to fight fire.

*Unusual Fire and Explosion Hazards:* Tungsten trioxide may be emitted

### SECTION V - REACTIVITY DATA

*Stability:* Stable



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*Conditions to Avoid:* Ignites on contact with fluorine gas at room temperature. Contact with acids may generate flammable hydrogen gas.

*Incompatibility:* Avoid contact with strong oxidizers (bromine, bromine pentafluoride, chlorine trifluoride, potassium perchlorate, potassium dichromate, nitryl fluoride, oxygen difluoride, iodine pentafluoride, hydrogen sulfide, sodium peroxide, lead IV oxide). Powder may be flammable.

*Hazardous Decomposition or Byproducts:* None

*Hazardous Polymerization:* N/A

*Conditions to avoid:* Incompatibilities

## SECTION VI - HEALTH HAZARD DATA

Most studies have shown tungsten to be toxicologically inert. Dust inhalation may cause irritation to nose and throat, skin and eye contact may cause irritation due to abrasive action of dusts and tungsten is mildly toxic by an unspecified route. Repeated exposure may lead to pulmonary fibrosis.

*Health Hazards (Acute and Chronic):*

*Inhalation:* May cause respiratory tract irritation

*Ingestion:* May cause gastrointestinal irritation nausea, vomiting and diarrhea.

*Skin:* May cause irritation

*Eye:* May cause eye irritation

*Carcinogenicity:* NTP - IARC Monographs - OSHA Regulated -

*Emergency and First Aid Procedures:*

*Inhalation:* Remove victim to fresh air, keep warm and quiet, and give oxygen if breathing is difficult; 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

*Skin:* Remove contaminated clothing, brush material off skin, wash affected area with mild soap and water, and seek medical attention if symptoms persist

*Eye:* Flush eyes with lukewarm water, lifting upper and lower eyelids for at least 15 minutes and seek medical attention

## SECTION VII - PRECAUTIONS FOR SAFE HANDLING AND USE

*Steps to be taken in case material is released or spilled:*

Wear appropriate respiratory and protective equipment specified in section VIII. Isolate spill area, provide ventilation and extinguish sources of ignition. Vacuum up spill using a high efficiency particulate absolute (HEPA) air filter and place in a closed container for proper disposal. Take care not to raise dust.



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*Waste disposal method:*

Dispose of in accordance with state, local, and federal regulations.

*Hazard Label Information:*

Store in cool, dry area and in tightly sealed container. Wash thoroughly after handling.

SECTION VIII - CONTROL MEASURES
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*Protective Equipment Summary (Hazard Label Information):*

NIOSH approved respirator, impervious gloves, safety glasses, clothes to prevent contact.

*Ventilation:*

Local Exhaust: To maintain concentration at low exposure levels.

Mechanical (General): Recommended.

*Work/Hygienic/Maintenance Practices:*

Implement engineering and work practice controls to reduce and maintain concentration of exposure at low levels. 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.

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Please be advised that N/A can either mean Not Applicable or No Data Has Been Established