Safety Data Sheet

1. Identification

Product Identifier: TUNGSTEN

Other means of Identification

Description: Electrodes

Product code: Tungsten (EWP), 2% Ceriated Tungsten (EWCe-2), 2% Lanthanated Tungsten (EWLa-1), 1% Thoriated Tungsten (EWTh-1), 2% Thoriated Tungsten, (EWTh-2), Zirconated Tungsten (EWZr-1), 1.5% Lanthanated Tungsten (EWG) AWS A5.12

Recommended use: ARC Welding with the process (Tungsten inert gas).

Recommended restrictions: None known

Manufacturer/Importer/Supplier/Distribution information:

Supplier: Uniweld Products, Inc.
Address: 2850 Ravenswood Road, Ft. Lauderdale, FL 33312, United States of America

Emergency: **For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night within USA and Canada: 1-800-424-9300 or +1 703-527-3887 (collect calls accepted)**

2. Hazard(s) identification

Important: This section covers the material from which the product is manufactured. The fumes and gases produced during welding with the normal use of this product are covered under Section V. Thorium dioxide is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986(SARA) and 40 CFR Part 372.

Tungsten welding electrodes are non-hazardous solids at ambient temperature. Skin contact is normally not hazardous but should be avoided to prevent possible allergic reaction. Avoid eye contact or inhalation of dust or fumes from the product. Actual exposure should be determined by monitoring the fume in the operator's breathing zone.

When this product is used in a welding process the most significant hazards are electric shock, fumes, gases, radiation, spatter, slag and heat. Electric shock can kill. Arc rays can damage eyes and burn skin. Spatter and slag can damage eyes. Spatter, slag, melting metal, arc rays and hot welds can cause burn injuries and start fires. Welding arcs or torch flame may be a source of ignition to combustible materials.

The primary entry route for welding fumes and gases is by inhalation. Short term overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes and may aggravate pre-existing respiratory problems (e.g. asthma, emphysema). Long term overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include ; coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welders head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3.
Most fume ingredients are present as complex oxides and compounds and not as pure metals.
Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc. as noted above.

Welding fumes must be considered as carcinogens. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B). Hence, before using welding wire and/or electrodes read and understand the manufacturer's instructions, SDSs, and your employer's safety practices. Take necessary precautions and use proper ventilation and absorption system to remove fumes and gases from your breathing zone and the general area. Keep your head out of the fumes. Do not breathe gas and fumes. Always, wear correct eye, ear, and body protection and do not touch live electrical parts.

Designation		Chemical Composition Impurities ≤ 0.1%		Tip Color
ISO 6848	AWS A5.12	Oxide Additive, %	Tungsten, %	
WT20	EWTH-2	ThO2: 1.70-2.20	≥ 97.30	RED
WP	EWP	----	≥ 99.95	GREEN
WL15	EWLa-1.5	LaO2: 1.30-1.70	≥ 97.80	GOLD
WC20	EWCe-2	CeO2: 1.80-2.20	≥ 97.30	ORANGE/GRAY
WL20	EWLa-1	La2O3: 0.80-2.20	≥ 98.30	BLACK
WL10	EWLa-2	La2O3: 1.80-2.20	≥ 97.30	SKY-BLUE
WZ3	EWZR-1ns	ZrO2: 0.15-0.50	≥ 99.10	BROWN

The term "HAZARDOUS MATERIALS" should be interpreted as a term required and defined in OSHA HAZARD COMMUNICATION STANDARD 29 CFR 1910.1200 however the use of this term does not necessarily imply the existence of any hazard.

3. Composition/Information on ingredients

Ingredient	CAS number:	OSHA PEL	ACGIH TWA	ACGIH STEL
Tungsten(w)	7440-33-7	-	5mg/m3	10 mg/m3
Thorium Dioxide	1314-20-1	-	-	-
Zirconium Oxide	1314-23-4	5mg/m3	5mg/m3	10 mg/m3
Cerium Dioxide	1345-13-7	-	-	-
Lanthanum Dioxide	1312-81-8	-	-	-

Gaseous reaction products may include carbon monoxide and carbon dioxide Ozone and nitrogen oxides may be formed by the radiation from the arc. One method of determining the composition and quantity of the fumes and gases to which the workers are exposed is to take an air sample from inside the welder's helmet while worn or within the worker's breathing zone. See ANSI/AWS F1.1 publication available from the American Welding Society 550 N.W. LeJeune Road, Miami, Florida 33126

4. First-aid measures

Inhalation: If dust or fumes are inhaled, provide fresh air and call a physician. If breathing has stopped, perform artificial respiration and obtain medical assistance immediately.

Eye contact: For radiation burns due to arc flash, see physician. To remove dust, fumes or particulates flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

Skin contact: The unused welding product does not irritate the skin but wear gloves to prevent possible allergic reactions. For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.

Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician.

General information: Carcinogenicity: Thorium dioxide has been identified as a carcinogen by NTP, IARC and others. Evidence for its ability to cause cancer has come solely from its internal medical use.

5. Fire-fighting measures

Welding consumables applicable to this sheet as shipped are non reactive, non-flammable, non-explosive and essentially nonhazardous until welded. Welding arcs and sparks can ignite combustibles and flammable products. Unused welding consumables may remain hot for a period of time after completion of welding process. Wear self-contained breathing apparatus as fumes or vapors may be harmful. See American National Standard (ANSI) Z49.1 for further general safety information on the use and handling of welding consumables and associated procedures.

6. Accidental release measures

Prevent waste from contaminating surrounding environment. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and Local regulations.

7. Handling and storage

Precautions for safe handling:

Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Wash hands / shower before breaks and end of work.
Avoid exposure to dust. Local exhaust ventilation of the working area is important.
Some individuals can develop an allergic reaction to certain materials.
Retain all warning and identity labels.

Conditions for safe storage, including any incompatibilities:

Store in accordance with local, regional, national, and international regulations.
Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions. Avoid humidity and temperature shocks. Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside a wall.
Storage temperature 21°C ± 2°C, Relative humidity max. % 60. If for any reason the protective nylon of the packing was torn or pierced and it won't be used immediately the packaging should replaced.

8. Exposure controls/personal protection

Individual protection measures, such as personal protective equipment.

Ventilation:

Use enough ventilation, local exhaust at the arc, or both to keep the fumes and gases below PEL/TLV's in the worker's breathing zone and the general area. Train the welder to keep his head out of the fumes. Keep exposures as low as possible.

Respiratory protection:

Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding in confined space or where local exhaust or ventilation does not keep exposure below the recommended exposure limit.

Hand protection:

Wear heat protecting gloves (Non-flammable). For hygiene wash hands before breaks and end of work.

Eye protection:

Wear helmet or use face shield with filter lens. As a rule of thumb begin with Shade Number 14. Adjust if needed by selecting the next lighter and/or darker shade number. Provide protective screens and flash goggles, if necessary, to shield others.

Protective clothing:

Wear hand, head and body protection which help to prevent injury from radiation, sparks and electrical shock. See Z49.1. At a minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark nonsynthetic clothing. Train the welder not to touch live electrical parts and to insulate himself from work and ground.

Special precautions:

Maintain exposure below the PEL/TLV. Use industrial hygiene monitoring to ensure that your use of this material does not create exposures which exceed PEL/TLV. Always use exhaust ventilation. For hygiene, wash hands before breaks and end of work. Do not eat, drink or smoke in working areas.

9. Physical and chemical properties

Appearance:	Solid, non-volatile
Color:	Generally greyish, but other colors may be present.
Odor:	Odorless
Solubility (water):	Insoluble
Danger of explosion	Product does not present an explosion hazard.
Self-igniting	Product is not self igniting
Boiling Point	N/A
Vapor pressure:	N/A
Vapor density:	N/A
Melting point	6191°F (3422 °C)
Density:	N/A
pH	N/A

10. Stability and reactivity

General:	These products are only intended for normal welding purposes.
Stability:	These products are stable under normal conditions.
Reactivity:	Contact with chemical substances like acids or strong bases could cause generation of gas.
Special precautions:	Read and understand the manufacturer's instructions and precautionary label on this product. It is recommended that thoriated electrodes are stored in steel boxes, clearly labeled, with the radiation trefoil. Preparation/Grinding. Grinding creates a minimal hazard due to the thoria in the grinding dust. Grinder should incorporate local dust extraction. Operator should wear a filter mask, gloves and eye protection when handling and grinding thoriated tungsten. Dust extracted from the grindstone should be deposited into an airtight, disposable bag. See American Standard Z49.1 Safety in Welding and Cutting, published by the AMERICAN WELDING SOCIETY, 550 N.W. Lejeune Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910).

Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and electrodes used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include ; coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality and amount of ventilation, the position of the welders head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from cleaning and degreasing activities). The amount of fume varies with the welding parameters. The concentration of a given fume or gas component may decrease or increase by many times the original concentration in the electrode/wire. Also, new compounds not in the electrodes/wire may form. Hence, welding fumes and gases cannot be classified simply. Most fume ingredients are present as complex oxides and compounds and not as pure metals.
Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 3, plus those from the base metal and coating, etc. as noted above.
Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

11. Toxicological information

THRESHOLD LIMIT VALUE – The ACGIH recommended general limit for welding fume NOC (Not Otherwise Classified) is 5mg/M3 . The ACGIH 1984-85 preface states: "The TLV-TWA should be used as guides in the control of health hazards and should not be used as firm lines between safe and dangerous concentrations." See Section 10 for specific fume constituents, which may modify this TLV.

EFFECTS OF OVEREXPOSURE – **FUMES AND GASES** can be dangerous to your health. Aggravation of pre-existing respiratory or allergic conditions may occur in some workers.

SHORT-TERM (ACUTE) OVEREXPOSURE to welding fumes may result in discomfort such as: dizziness, nausea, or dryness or irritation of nose, throat, or eyes.

LONG-TERM (CHRONIC) OVEREXPOSURE may lead to siderosis (iron deposits in the lung) and is believed by investigators to affect pulmonary function. ARC RAYS can injure eyes and burn skin.

12. Ecological information

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

13. Disposal considerations

WASTE DISPOSAL: Disposal must be made according to official regulations. Discard any product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with Federal, State and local regulations. Use recycling procedures for material if available.

14. Transport information

No international regulations or restrictions are applicable. No special precautions are necessary.

15. Regulatory information

HCS CLASSIFICATION:	Not Regulated.
U.S. FEDERAL REGULATIONS:	
TSCA 8(a) CDR Exempt/Partial Exemption:	This material is listed or exempted.
United States Inventory (TSCA 8b):	This material is listed or exempted.
SARA 302/304:	No products were found.
SARA 311/312 Hazards Identification:	Not regulated.
CLEAN AIR ACT SECTION 112 (b) HAZARDOUS AIR POLLUTANTS (HAPS):	Not listed.
CLEAN AIR ACT SECTION 602 CLASS I & II SUBSTANCES:	Not listed.
DEA LIST I CHEMICALS (PRECURSOR CHEMICALS):	Not listed.
DEA LIST II CHEMICALS (ESSENTIAL CHEMICALS):	Not listed.
STATE REGULATIONS	
MASSACHUSETTS:	This material is not listed.
NEW YORK:	This material is not listed.
NEW JERSEY:	This material is not listed.
PENNSYLVANIA:	This material is not listed.
CALIFORNIA:	California Proposition 65

WARNING: CALIFORNIA PROPOSITION 65: This product, when used for welding, soldering, brazing, cutting and other metal working or flame processes, produces fumes, particulates, residues and/or other by-products which contain chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

CANADA:	
WHMIS (CANADA):	Not controlled under WHMIS (Canada)
Canadian Lists	
CANADIAN NPRI:	This material is not listed.

CANADIAN LISTS (CONTINUE)

CEPA TOXIC SUBSTANCES:	This material is not listed.
CANADA INVENTORY (DSL):	This material is listed or exempted.

INTERNATIONAL REGULATIONS

International Lists

AUSTRALIA INVENTORY (AICS):	This material is listed or exempted.
CHINA INVENTORY (IECSC):	This material is listed or exempted.
JAPAN INVENTORY:	Not determined.
KOREA INVENTORY:	This material is listed or exempted.
MALAYSIA INVENTORY (EHS REGISTER):	Not determined.
NEW ZEALAND INVENTORY OF CHEMICALS (NZIoC):	This material is listed or exempted.
PHILIPPINES INVENTORY (PICCS):	This material is listed or exempted.
TAIWAN INVENTORY (CSNN):	Not determined.
EUROPE INVENTORY (EINECS):	This material is listed or exempted.
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE I CHEMICALS:	Not listed.
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE II CHEMICALS:	Not listed.
CHEMICAL WEAPONS CONVENTION LIST SCHEDULE III CHEMICALS:	Not listed.

16. Other information, including date of preparation or last revision

This Safety Data Sheet has been revised due to new format. Contact Uniweld Products Inc., if you have questions about this SDS.

Uniweld products Inc., believes this data to be accurate and to reflect qualified expert opinion regarding research.
However Uniweld products Inc., can not make any expressed or implied warranty as to this information.

Disclaimer:

All information in this Safety Data Sheet is believed to be accurate and reliable.
However, no guarantee or warranty of any kind is made with regards to the accuracy of information or the suitability of the recommendations contained herein.
It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.