

TUNGSTEN ELECTRODE SAFETY DATA SHEET (SDS)

Conforms to OSHA Hazard Communication Standard 29CFR 1910.1200
Standard Must Be Consulted for Specific Requirements

SECTION 1: PRODUCTS IDENTIFICATION

Products Name: Tungsten Electrodes

The products use: For welding consumables and related products.

Chemical Name: EWP, EWTh10, EWTh20, EWLa15, EWLa10, EWLa20, EWCe20, EWZr3, EWZr8, EWG

Classification: AWS A5.12 ISO6448 DIN EN26848

TE2-1.0, TE2-1.6, TE2-2.4, TE2-3.2, TE2-4.0, TEZ-1.0, REZ-1.6, TEZ-2.4, TEZ-3.2, TEZ-4.0,
TEC-1.0, TEC-1.6, TEC-2.4, TEC-3.2, TEC-4.0, TEL-1.0, TEL-1.6, TEL-2.4, TEL-3.2,
TE3-1.0, TE3-1.6, TE3-2.4, TE3-3.2, TE3-4.0.

Details of the supplier of the safety data sheet:

Supplier:

Weldtronic International P/L

42-46 Micro Circuit, Dandenong South

Victoria, Australia 3175

Tel: 03 9702 9366

Email: www.weldtronic.com.au

SECTION 2: HAZARDS IDENTIFICATION

Classification of the mixture:

This product is placed on the market in solid form.

Classification in accordance with GHS-US

STOT RE 1 H315

STOT SE 1 H335

STOT RE 1 H372

Aquatic Acute 1 H410

Aquatic Acute 1 H400

Label Elements:

GHS-US Labeling

Hazard Pictograms (GHS-US):



Signal Word (GHS-US): Danger

Hazard Statements (GHS-US):

H317 May cause an allergic skin reaction .

H319 Causes eye irritation .

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled .

H340 Suspected of causing genetic defects .

H351 Suspected of causing cancer .

H370 Causes damage to organs (kidneys, respiratory system) .

H372 Causes damage to organs through prolonged or repeated exposure.

H400 Very toxic to aquatic life .

H410 Very toxic to aquatic life with long lasting effects Precautionary Statements.

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P201	Obtain special instructions before use .
P202	Do not handle until all safety precautions have been read and understood .
P260	Do not breathe dust/fume/gas/mist/vapours/spray .
P261	Avoid breathing dust/fume/gas/mist/vapours/spray P264 Wash thoroughly after handling .
P270	Do not eat, drink or smoke when using this product.
P272	Contaminated work clothing should not be allowed out of the workplace .
P273	Avoid release into the environment .
P280	Wear protective gloves .
P284	In case of inadequate ventilation wear respiratory protection
P308+313	If exposed: Call a POISON CENTER or doctor/physician .
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists seek medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER and / or doctor / physician.
P302+P352	If on skin: Wash with plenty of soap and water
P333+P313	If skin irritation or rash occurs: Get medical advice / attention P363 Wash contaminated clothing before reuse.
P308+P311	If exposed or concerned: Seek medical advice / attention. Collect spillage.
P402+P404	Store in a dry place. Store in a closed container .

For thoriated tungsten electrodes, store in tightly closed containers in a cool and well-ventilated area. Nobody should remain permanently or longer than necessary in close proximity to the stored thoriated tungsten electrodes as the electrodes may emit alpha, beta and gamma radiation. Additional measures should be taken to protect from such possible alpha, beta and gamma radiation. Thoriated tungsten electrodes may be incompatible with some strong acids.

P501 Dispose of contents and container in accordance with local regional/national international regulations.

Other Hazards: No additional information available
Unknown acute toxicity (GHS-US): No data available

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances: No data available

Mixtures: The mixture contains dangerous substances:

Designation			Chemical Composition Impurities ≤ 0.1%		Tip Color
ISO 6848	AWS A5.12	WQTB	Oxide Additive, %	Tungsten, %	
WT20	EWTh-2		ThO ₂ : 1.70-2.20	≥ 97.30	Red
WP	EWP		-----	≥ 99.95	Green
WL15	EWL _a -1.5		LaO ₂ : 1.30-1.70	≥ 97.80	Gold
WC20	EWCe-2		CeO ₂ : 1.80-2.20	≥ 97.30	Orange / Gray
WL10	EWL _a -1		LaO ₂ : 0.80-1.20	≥ 98.30	Black
WL20	EWL _a -2		LaO ₂ : 1.80-2.20	≥ 97.30	Sky-blue
WZ3	EWZr-1		ZrO ₂ : 0.15-0.50	≥ 99.10	Brown
WZ8			ZrO ₂ : 0.70-0.90	≥ 98.60	White
WY20			Y ₂ O ₃ : 1.80-2.20	≥ 97.30	Blue
WS			LaO ₂ & CeO ₂ : 1.80-2.20	≥ 97.30	turquoise
		WE3	1.5% La ₂ O ₃ & 0.8% ZrO ₂ & 0.8% Y ₂ O ₃	≥ 96.88	purple

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SECTION 4: FIRE FIGHTING MEASURES

General information:The metal is in its solid form non-combustible.

Extinguishing media:

Suitable extinguishing media: Use extinguishing media (such as water/water jet or class D dry powder) appropriate for surrounding fire.

Special hazards arising from the substance or mixture: Fire may produce irritating or poisonous gases.

Fire hazard: Not flammable

Explosion hazard: None known

Advice for firefighters: In the event of fire, wear self-contained breathing apparatus and full protective gear.

SECTION 5: FIRST AID MEASURES

General information:No special measures required

After inhalation:Instantly remove any clothing soiled by the products;

Supply fresh air;consult doctor in case of symptoms;

Provide ventilation when person is not breathing or is breathing inadequately .

After skin contact:The product is not skin irritating .

After eye contact:Rinse opened eye for several minutes under running water.Then consult doctor

After swallowing:Rinse out mouth and then drink plenty of water

After ingestion:Do NOT induce vomiting. Get immediate medical attention.

Information for doctor:

Treatment:If swallowed or in case of vomiting,danger of entering the lungs.Subsequent observation for pneumonia and pulmonary oedema.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

For non-emergency personnel: Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.

For emergency responders: No data available.

Environmental precautions: Avoid release into the environment. Avoid dispersal of spilled material and contact with soil, ground and surface water drains and sewers.

Methods and material for containment and cleaning up: Take up mechanically. Collect the material in labeled containers and dispose of according to local and regional authority requirements.

Reference to other sections: See Section 7 for information of safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposal information.

SECTION 7: HANDLING AND STORAGE

Precautions and safe handling:

Welding may produce dust, fumes, and gases hazardous to health. Avoid breathing dust, fumes, and gases. Use adequate ventilation. Keep away from sources of ignition. Avoid contact with skin, eyes and clothing. Do not eat, drink, and smoke in work areas. At the end of the work shift, hands and other exposed skin should be washed thoroughly. Follow good housekeeping practices to ensure that powders and dusts from grinding operations do not accumulate; such residue can be highly flammable and may pose special health hazards from thorium containing electrodes.



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Tungsten-Thorium Oxide alloys are generally safe to handle during use under all normal conditions and environments. However, special precautions must be taken during the grinding or machining of tips of electrodes that contain Thorium Oxide to avoid the generation and subsequent inhalation and ingestion of dusts from these operations. Any dusts generated during these operations may be considered "Source Material" as defined by the Nuclear Regulatory Commission and therefore be subject to the requirements of 10 CFR, Parts 20 and 40. Routine wet mopping or vacuuming with an explosion proof vacuum fitted with a HEPA filter, may be considered to reduce accumulation of dusts.

Conditions for safe storage, including and incompatibilities: Store in cool, dry, and well ventilated place. Keep away from incompatible materials. Keep away from heat and open flame.

Specific end use(s): For welding consumables and related products.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters: Exposure limits were not established for this product.

INGREDIENT	CAS No.	OSHA PEL	ACGIH TWA	ACGIH STEL
Tungsten (W)	7440-33-7	5 mg/m ³	5 mg/m ³	10 mg/m ³
Thorium Dioxide	1314-20-1	-	-	-
Cerium Dioxide	1345-13-7	-	-	-
Lanthanum Dioxide	1312-81-8	15 mg/m ³	10 mg/m ³	-
Zirconium Oxide	1314-23-4	5 mg/m ³	5 mg/m ³	10 mg/m ³
Yttrium Oxide	1314-36-9	1 mg/m ³	1 mg/m ³	-

Exposure controls: Read and understand the manufacturers instructions and precautionary label on this product. See American Standard Z49.1 Safety in Welding and Cutting, published by the American Welding Society, 550 N.W. Lejeune Rd. Miami, FL and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details on the following topics.

Appropriate engineering controls: Local exhaust and general ventilation must be adequate to meet exposure standards.

Personal protective equipment:

General protective and hygienic measures: Do not eat ,drink,smoke orsnuff while working;hygienic working conditions, e.g.washing your hands.Use skin protection cream for prebentive skin protection.

Protection of hands:Wear welding gloves .

Protection of eye:Wear a helmet or face-shield with filter lens of appropriate shade number .See ANSI/ASC Z49.1 Section 4.2.Provide protective screens and flash goggles,if necessary,to shield others.

Protection of skin and body:Wear head and body prodection ,which help tp prebent injury form radiation,sparks, flame and electrocal shock.See ANSI Z49.1. At minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate him/herself from work and ground. Welders should not wear short sleeve shirts or short pants.

Respiratory protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Melting Point: Approximately 3400°C

Boiling Point: Approximately 5900°C

Solubility in Water: Insoluble

Color: Silver-gray

Odor: odorless

Vapor. Press: N/A at 25°C



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Specific Gravity (H₂O=1): Approximately 18.9
 Radioactive Isotope: Th-232
 Other information: No additional information available

Vapor. Density: N/A

SECTION 10: STABILITY AND REACTIVITY

Reactivity: No additional information available.

Chemical stability: The product is stable under normal conditions. When in use it may produce dangerous dusts, fumes, and gases.

Possibility of hazardous reactions: Will not occur.

Conditions to avoid: None

Incompatible materials: None

Hazardous decomposition products: 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 welding consumables used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coating on the metal being welded (i.e. paint, painting, galvanizing), the number of welders, the volume of the work area, the quality and the 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 the cleaning and de-greasing activities). When an electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Fume and gas decomposition, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration. Also, new compounds not in the electrodes may form. 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 coating, etc., as noted above. Reasonable expected fume constituents of this product would include: Complex oxides of iron, manganese, silicon, chromium, nickel, columbium, molybdenum, copper, carbon dioxide, carbon monoxide, ozone and nitrogen Oxides. Some products will also contain antimony, barium, molybdenum, aluminum, columbium, magnesium, strontium, tungsten, and or zirconium. Fume limit for chromium, nickel and or manganese may be reached before limit of 5 mg/m³ of general welding fumes is reached. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS F1.1, F1.3 and F1.5, available from the American Welding Society, 550 N.W. Lejeune Road, Miami, FL 33126.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicology effects:

Acute Toxicity: Harmful if swallowed

Substance Name	CAS Number	LD50 Oral rat. (mg/kg)	ATE (Oral) (mg/kg)	Comments
Tungsten	7440-33-7	>2000mg/kg		No data
Thorium Dioxide	1314-20-1	>8mg/kg		No data
Cerium Dioxide	1345-13-7			No data
Lanthanum Dioxide	1312-81-8			No data
Zirconium Oxide	1314-23-4			No data
LaYZr™	1314-36-9			No data

Skin corrosion/irritation: Not classified

Serious eye damage/irritation: Not classified

Respiratory or skin sensitization: Not classified

Germ cell mutagenicity: Not classified

Carcinogenicity: May cause cancer

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Reproductive toxicity: Not classified

Specific target organ toxicity (single exposure): May cause drowsiness or dizziness. May cause respiratory irritation.

Specific target organ toxicity (repeated exposure): Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard: Not classified

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:

Ecology-general: Very toxic to aquatic life

Persistence and degradability: No additional information available.

Bioaccumulative potential: No additional information available.

Mobility in soil: No additional information available.

Other adverse effects: No additional information available.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose of in accordance with local and national regulations.

Waste disposal recommendations: Dispose of contents/container in accordance with local/regional/national/ international regulations.

SECTION 14: TRANSPORT INFORMATION

In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA

UN Number: Not a dangerous good in sense of transport regulations.

UN proper shipping name: Not applicable

Transportation Notes: The packaging should be complete at the time of shipment, loading should be secure. Transportation process to ensure that the container does not collapse, does not damage, do not fall, do not leak. Forbidden shipment with oxidants, halogen, food chemicals mixed transport. Transport should be anti-rain, anti-exposure (high temperature). Completely clean the vehicle after it is transported.

SECTION 15: REGULATORY INFORMATION

REGULATORY INFORMATION: Chemical Dangerous Goods Safety Management Regulations (February 17, 1987 the State Council issued), the Regulations of Hazardous Chemical Safety Management Regulations (the Labor Fa [1992] No. 677), the workplace safe use of chemicals ([1996] Production, storage, transportation, loading and unloading and other aspects of the corresponding provisions; workshop in the air of tungsten health standards (GB 16229-1996), provides for the workshop in the air (the Ministry of Health) The maximum allowable concentration of the substance and detection methods.

SECTION 16: OTHER INFORMATION

Full text of H-Phrases:

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard, Category 1

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Carc. 1A	Carcinogenicity, Category 1A
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2A	Sensitisation - Skin corrosion/irritation, Category 2
Skin Sens.1	Sensitisation - Skin, Category 1
STOT RE 1	Specific target organ toxicity - Repeated exposure, Category 1
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Narcosis
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation
H301	Toxic if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H350	May cause cancer
H372	Causes damages to organs through prolonged or repeated exposure
H400	Very Toxic to aquatic life

NFPA Health Hazard: 2 - Warning may be harmful if inhaled or absorbed.

NFPA Fire Hazard: 0 - Materials that will not burn.

NFPA Reactivity: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water

HMIS III Rating

Health: 3 - Major Hazard - Major injury likely unless prompt action is taken and medical treatment given

Flammability: 0 - Minimal Hazard

Physical: 0 - Minimal Hazard

Weldtronic International P/L believes that the information contained in this (SDS) Safety Data Sheet is accurate. However, Weldtronic International P/L does not express or implies any warranty with respect to this information. When the new safety data sheet replaces the previous version which becomes invalid.