

# MATERIAL SAFETY DATA SHEET( MSDS)

Tungsten Electrodes

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## SECTION I-PRODUCT IDENTIFICATION

Trade Name/Class : Tungsten Element  
Product Use:Welding,Metal working operations  
Classification: AWS A5.12

## SECTION II - INGREDIENTS

Designation		Chemical Composition Impurities ≤0.1%		Tip Color
ISO 6848	AWS A5.12	Oxide Additive,%	Tungsten,%	
WT20	EWTh2.0	ThO <sub>2</sub> :1.7-2.20	≥97.30	Red
WP	EWP		≥99.50	Green
WL15	EWLa1.5	LaO <sub>2</sub> :1.30-1.70	≥97.80	Gold
WC20	EWCe2.0	CeO <sub>2</sub> :1.80-2.20	≥97.30	Grey
WL20	EWLa2.0	La <sub>2</sub> O <sub>3</sub> :1.80-2.20	≥97.30	Blue
WZ8		ZrO <sub>2</sub> :0.70-0.90	≥98.00	White

## SECTION III -PHYSICAL DATA

Metal Point: Approximately 3400°C  
Boiling Point: Approximately 5900°C  
Solubility in Water: Insoluble  
Specific Gravity: Approximately 19.3  
Radioactive Isotope: Th- 232  
Color: Sliver Gray  
Odor: Odorless  
Vapor Press: N/A at 25°C  
Vapor Density: N/A

## SECTION IV-FIRE AND EXPLOSION HAZARD DATA

Non-Flammable:Welding arc and sparks can ignite combustibles, See Z-49.1

## SECTION V-REACTIVITY DATA

Welding fumes and gases cannot be classified simply. The composition and quantity if these fumes and gases are dependent upon the metal being welded, the procedures followed and electrodes used.Works should be aware that the composition and quantity if fumes and gases to which they may be exposed, are influenced by:coatings which may be present on the metal being welded(such as paint, plating, or galvanizing), the number of welders in

operation and the volume of work area, the quality and amount of ventilation, the position of the welder's 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 procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percent and form from the ingredients listed in section II. The composition of these fumes and gases are the concerning matter are not the composition of electrode itself. Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in section II, plus those from the base metal, coating and the other factors noted above.

Gaseous reaction products may include carbon monoxide and carbon dioxide.

Ozone and nitrogen oxide may be formed by the radiation from the arc.

## SECTION VI-HEALTH DATA

INGREDIENT	CAS NO	OSHA PEL	ACGIH TWA	ACGIH STEL
Tungsten(W)	7440-33-7	-	5mg/m3	10mg/m3
Thorium Dioxide	1314-20-1	-	-	-
Cerium Dioxide	1345-13-7	-	-	-
Lanthanum Dioxide	1312-81-8	-	-	-
Zirconium Oxide	1314-23-4	5mg/m3	5mg/m3	10mg/m3

Effects of Overexposure: Inhalation of welding fumes and gases can be dangerous to your health. Short term overexposure to welding fumes may result in discomfort such as dizziness, nausea, or dryness or irritation of nose, throat or eyes. Although the inhalation of Tungsten has the potential for causing transient or permanent lung damage, it is generally considered to exhibit a low degree of toxicity.

Thorium is a naturally occurring radioactive element, its primary hazard lies in inhalation of dust/fumes. Normal handling of these electrodes is not expected to result in any significant radiation exposure. Considerable experience in refining and use of thorium has not revealed any adverse effects from industrial exposure. Long term over exposure to welding fumes can lead to siderosis and is believed to affect pulmonary function.

Arc rays can injure eyes and burn skin.

Electric shock can kill.

## SECTION VII-HANDLING

All employees who handle these materials should be trained to handle it safely. Avoid breathing dusts or powders generated during grinding of electrode tips. Open package and containers of these products slowly, on a stable surface. Packages and containers of these products must be properly labeled.

## SECTION VIII-EXPOSURE CONTROLS

Ventilation: Use plenty of ventilation and local exhaust at the arc, to keep the fumes and gases below the threshold limit value within the worker's breathing zone and the general work area. Welders should be advised to keep their head out of fumes.

Waste disposal method:

Discard any product, residue, disposal container, or liner in an environmentally acceptable manner approved by federal, state and local regulations.