MATERIAL SAFETY DATA SHEET

1. PRODUCT AND MANUFACTURER IDENTIFICATION

Chemical Name: Tungsten Electrodes

Product Classification: Types EWP, EWCe, EWLa, EWTh, and EWZr

Recommended use: Gas Tungsten Arc Welding

Trade Name:

Pure 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)

Manufacturer: Bango Alloy Technologies Co.,Ltd.

2. COMPOSITION DETAILS

The composition of the tungsten electrodes varies depending on the type of electrode supplied to different classifications of the relevant National Standards. They consist of tungsten metal containing different amounts of metal oxide powders.

Details of the contents of the tungsten electrodes covered by this data sheet are given below.

Designation		Chemical Composition Impurities< 0.1%		Tip Color
ISO 6848	AWS A5.12	Oxide Additive %	Tungsten %	
WP	EWP	-----	>=99.95	Green
WT20	EWTh-2	ThO2: 1.70-2.20	>=97.30	Red
WL15	EWLa-1.5	LaO2: 1.30-1.70	>=97.80	Gold
WC20	EWCe-2	CeO2: 1.80-2.20	>=97.30	Orange/Gray
WL10	EWLa-1	La2O3: 0.80-1.20	>=98.30	Black
WL20	EWLa-2	La2O3: 1.80-2.20	>=97.30	Sky-blue
WZ3	EWZr-1	ZrO2: 0.15-0.50	>=99.10	Brown
WZ8		ZrO2: 0.70-0.90	>=98.60	White
WY20		Y2O3: 1.80-2.20	>=97.30	Blue

3. PHYSICAL DATA

oMelting Point: Approximately 3400qC
Boiling Point: Approximately 5900Qc
Specific Gravity (H2O=1): Approximately 19.3

Color: Silver-gray
Odor: odorless
Solubility in Water: Insoluble
Vapor. Press: N/A at 25qC
Vapor. Density: N/A
Radioactive Isotope: Th-232

4. HAZARDOUS INGREDIENTS

There are no recognized hazards associated directly with unused electrodes prior to grinding and welding. Packaged consumables may be heavy, and should be handled and stored with care. Follow manual handling regulations.

Some low levels of dust may be produced during handling. Do not breathe the dust.

Hot metal spatter and heat, which can cause burns to the hand and body, and may cause fire if in contact with combustible materials.

UV, IR and light radiation from the arc, which can produce 'arc eye' and possible eye damage to unprotected eyes. Wear suitable protective equipment.

Fumes produced from the electrodes, material being welded and the arc radiation:

Radioactive fume from the thoriated types of electrode.

Particulate fume such as metal oxides from the electrodes, and complex metal oxides and silicates from the weld materials.

Gaseous fume such as ozone and nitrogen oxides from the action of arc radiation on the atmosphere.

Short term inhalation of these fumes and gases may lead to irritation of the nose, throat and eyes.

Long term overexposure or inhalation of high levels of fumes may result in harmful effects to the respiratory system, central nervous system and lungs.

Local extraction and /or ventilation should be used to ensure that all hazardous ingredients in the fume are kept below their individual occupational exposure standards in the welder's and other workers' breathing zones.

NOTE: If welding is performed on plated or coated materials such as galvanised steel, excessive fume may be produced which contains additional hazardous components, and may result in metal fume fever and other health effects.

5. FIRE PREVENTION MEASURES

No specific measures required for the electrodes prior to welding.

Welding should not be carried out in the presence of flammable materials, vapours, tanks, cisterns and pipes and other containers which have held flammable substances unless these have been checked and certified safe.

6. CONTROL MEASURES AND PRECAUTIONS

Ventilation: Use plenty of ventilation and/or 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 the fumes.
Respiratory Protection: Use respirable fume respirator or air supplied respirator when welding in a confined space or general work area where local exhaust and/or ventilation does not keep exposure below the threshold limit value.
Eye Protection: Wear a helmet or face shield with a filter lens shade number 12-14 or darker. Shield other workers by providing screens and flash goggles.
Protective Clothing: Wear approved head, hand and body protection, which help to prevent injury from radiation, sparks and electrical shock. See ANSI Z-49.1. This would include wearing welder' s gloves and a protective face shield and may include arm protectors, apron, hats, shoulder protection, as well as dark substantial clothing. Welders should be trained not to allow electrically live parts to contract the skin or wet clothing and gloves. The welders should insulate themselves from the work and ground.
Waste Disposal Method: Discard any product, residue, disposal container, or liner in an environmentally acceptable manner approved by Federal, State and Local regulations.

7. FIRST AID MEASURES

No first aid measures should be required for the unused electrodes.

During welding

Inhalation: If breathing is difficult, bring the patient in fresh air; breathe in fresh air deeply.
For skin burns: Submerge affected area in cold water until burning sensation ceases and refer for immediate medical attention.
For eye affects such as arc eye and dusts: Irrigate eye with sterile water, cover with damp dressing and refer for immediate medical attention if irritation persists.
Ingestion: Ingestion is considered unlikely due to product form. However, if swallowed do not induce vomiting. Seek medical attention. Advice to doctor: treat symptomatically.
Electric shock: If necessary resuscitate and seek immediate medical attention.

8. HANDLING AND STORAGE

No special precautions are required for these welding electrodes.
Welding electrodes are dense materials and can give rise to a handling hazard when multiple packages are lifted or handled incorrectly or with poor lifting posture.
Good practice for handling and storage should be adopted to prevent physical injuries.

9. STABILITY AND REACTIVITY

There is no stability or reactivity hazards from welding electrodes as supplied.
Hazardous decomposition products such as metal oxide fumes and gases are produced during grinding and welding.

10. ECOLOGICAL DATA

The welding process produces particulate fumes and gases which may cause long term adverse effects in the environment if released directly into the atmosphere. Welding some materials with the electrodes covered by this data sheet can produce carbon dioxide gas, which is dangerous to the ozone layer.

11. DISPOSAL DATA

Packaging, and electrode stubs should be disposed of as general waste or recycled.
No special precautions are required for this product, except for the grinding dust and stubs of thoriated electrodes, which may require special disposal.

12. TRANSPORT INFORMATION

No special requirements are necessary in transporting these products

13. OTHER INFORMATION

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