parweld

WELDING THE FUTURE

MATERIAL SAFETY DATA SHEET

Safety Data Sheet

Issue 08/08/11, Tungsten Electrodes Zirconiated

1. Identification of the Substance/Preparation and the Company/Undertaking

Substance or preparation trade name: Tungsten Zirconiated
Company/undertaking name & address: Parweld Ltd, Long Bank, Bewdley, Worcs DY12 2TZ

Telephone: 01299 266800
Emergency telephone number: 01299 266800

2. Composition

Substance: W + Ca
% content: max 0.9% Zirconium
CAS Number: 7440-33-7 (Tungsten)
CAS Number: 7440-67-7 (Zirconium)

3. Hazards Identification

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 very low levels of dust may be produced during handling. DO NOT BREATHE THE DUST. When preparing (grinding) and using these electrodes as part of the welding process additional potential hazards are likely:
GRINDING. Toxic dusts. ENSURE ADEQUATE DUST EXTRACTION, VENTILATION AND DUST DISPOSAL
WELDING. Electric shock from the welding equipment or electrode. This can be fatal. 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: 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 IRRITATIONOF 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 ALLHAZARDOUS INGREDIENTS IN THE FUME ARE KEPT BELOW THEIR INDIVIDUALOCCUPATIONAL 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.

4. First aid measures

If a person breathes in large amounts of dust, remove from exposure.
If material gets in eyes, flush particles from eyes with water.

5. Fire fighting measures

Extinguishing media: use media suitable for surrounding fire

Special fire fighting procedures: None

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6. Accidental release measures

Steps to be taken in case material is spilled or released, provide clean-up employees with respirators for dusty conditions (grinding dust). Dampen down dust with water.

7. Handling and storage

No special requirements

8. Exposure Controls

Personal protection:
Respiratory protection: During grinding of these electrodes, toxic and radioactive dusts may be produced. Ensure adequate dust extraction, ventilation and dust disposal during and after grinding to prevent contamination of operators and co-workers. During welding, fumes and gases will be produced and emitted from the welding process. The content of the fume is dependent on the electrode type and base material being welded. The amount and concentration of fume generated is dependent on factors such as current, voltage, welding practices and number of welders in a given area. By following recommended welding practices, fume production can sometimes be minimised. When welding with the tungsten electrodes covered by this Data Sheet, the fume will consist of tungsten oxide from the electrodes, and may contain or zirconium oxides and other complex metal oxides and silicates from the material being welded. Gaseous ozone and nitrous oxides are also formed by arc radiation. In some cases ozone levels can be high and additional controls may be needed. The individual exposure limits (when specified) for the constituents mentioned above are given below. Fume exposure should be controlled to below the recognised exposure limit for each of the individual constituents, and to below 5 mgm/m3 for the total particulate fume.

Protective gloves: not necessary
Eye protection: safety glasses
Other protective equipment: depending on local conditions

Controls
Good general ventilation, and/or local fume extraction at the arc should be used to control the fumes and gases produced during welding to below their individual recognised exposure limits when measured in the welder's and co-workers' breathing zone. In addition the ventilation and extraction should also be sufficient to ensure that the total particulate fume levels are reduced below 5mgm/m3when measured in the breathing zone. In confined spaces where ventilation is not adequate, an air fed breathing system should be used. All precautions for working in confined space should be observed.

Welding fume component	CAS No.	OEL18hrTWA	STEL115minTWA
Total welding fume (particulate)-		5	
Tungsten and compounds (as W)			
Soluble	7440-33-7	1	3
Insoluble		5	10
Zirconium compounds (as Zr)	7440-67-7	5	10

9. Physical and chemical properties

Condition: solid
Appearance: steel-grey to black metal
Odour: no odour
Boiling point: 5900 C (6173 K)
Vapour pressure: not volatile
Vapour density: not volatile
Solubility of water: insoluble
Density: 19.3 g/cm3
Percent, volatile by volume 0
Evaporation rate: not volatile

10. Stability and reactivity

Stability Stable
Incompatibility: None known
Hazardous decomposition products: WO3- vapour at high temperatures (>800 C,1073k) not toxic:
Hazardous polymerisation: will not occur

11. Toxicological information

Excessive exposure may affect human health as follows:
Skin contact: None
Eye contact: None

Inhalation/ingestion: Welding fumes if inhaled can potentially produce several differing health effects caused by the metal containing particles and the gases produced during the welding process, both of which are present in the 'fumes'. The exact nature of any likely health effect is dependent on the consumable, material being welded, weld process, all of which affect fume quantity and composition, as well as the use of adequate ventilation, respirators, or breathing equipment as circumstances require. Inhalation of the fumes/gases produced during welding may lead to irritation to the nose throat and eyes. The range of health effects include respiratory effects with symptoms such as asthma, impaired respiratory and lung function, chronic bronchitis, metal fume fever, pneumoconiosis , possible emphysema and acute pulmonary oedema.

12. Ecological information

Zirconiated Tungsten has no known detrimental ecological effect. Its stability means it will remain within an ecosystem for a very long time without degradation.

13 Disposal Considerations

Packaging, and electrode stubs should be disposed of as general waste or recycled. No special precautions are required for this product

14. Transport information

No special transport requirements

15. Regulatory information

None

16. Other Information