

EC-Material Safety Data Sheet

For chemical substances and preparations according 1907/2006/EG, Article 31

Trade name: Tungsten Electrode E3[®]

Last revision: 30.05.2012

Printed Date: 03.07.2012



1. Identification of substance

Product details

Trade name: Tungsten Electrode E3[®]

Application of the substance / the Preparation: Non-melting electrode for TIG welding process; electrode for light technology; electrode for Plasma cutting, Plasma welding, Plasma spraying; Emission cathode for electronic tubes.

Manufacturer/Supplier: Alexander Binzel Schweißtechnik GmbH & Co. KG
Postfach 10 01 53 / D- 35331 Gießen

Phone: + 49 (0) 6408/59-0

Responded Person: Technical documentation

Phone: + 49 (0) 6408/59-0

e-Mail: technischdokumentation@binzel-abicor.com

Information in case of Emergency: Poison Control Center Mainz – 24 hour emergency service –
Tel.: + 49 (0) 6131 19240

2. Hazards identification

Hazard designation: void

Information pertaining to particular dangers for man and environment: The product does not have to be labelled due to the calculation procedure of the "General classification guideline for preparations of the EU" in the latest valid version.

Classification system: The classification is in line with current EC lists. It is expanded, however, by information from technical literature and by information provided by supplier companies.

GHS label elements: void

3. Composition/information on ingredients

Chemical characterization

Description: Mixture of the substances listed below with harmless additions.

Ingredients:			
CAS: 7440-33-7 EINECS: 231-143-9	Tungsten, W		50-100%
CAS: 1312-81-8 EINECS: 215-200-5	Lanthanum(III)-oxide		0-4%
CAS: 1314-23-4 EINECS: 215-227-2	Zircon oxide		0-4%
CAS: 1314-36-9 EINECS: 215-233-5	Yttrium oxid		0-4%

4. First aid measures

General information: No special measures required.

 Instantly remove any clothing soiled by the product.

After inhalation: 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.

Information for doctor

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

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5. Fire fighting measures

General information:	The metal is in its solid form non-combustible.
Suitable extinguishing agents:	Water, water jet, ABC dry powder or Class D dry powder.
For safety reasons unsuitable extinguishing agents:	-
Special hazards caused by the material, its products of combustion or flue gases:	-
Main products of combustion	Tungsten trioxide WO ₃ (CAS 1314-35-8)
Protective equipment:	Wear self-contained breathing apparatus.
Additional information	Cool endangered containers with water spray jet. Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.

6. Accidental release measures

Person-related safety precautions:	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation Keep away from ignition sources Use breathing protection against the effects of fumes/dust/aerosol. Wear protective clothing.
Measures for environmental protection:	 Do not allow product to reach sewage system or water bodies. Prevent emission to the environment, if at all possible. Dispose waste, dust collection filter and container in a secured manner and according to the valid national regulations. Retain and dispose impurified water from cleaning and grinding.
Measures for cleaning/collecting:	Send for recovery or disposal in suitable containers. Dispose of the material collected according to regulations. See section 13 for further information.
Additional information:	See section 13 for information on disposal.

7. Handling and storage

Handling:	Prevent incorporation of particulates during processing by using suitable extractions resp. inhalation protection with particulate collector P2 or P3, P3 is recommended, identification colour: white. Prevent dust formation
Information for safe handling:	-
Information about protection against explosions and fires:	see part 15
Storage:	see part 15
Requirements to be met by storerooms and containers:	No special requirements.
Information about storage in one common storage facility:	Store away from foodstuffs.
Further information about storage conditions:	see part 15.
Recommended storage temperature:	+5°C / +30 °C
Certain application:	This product is designed to be used as a non-melting electrode for TIG welding process. Dusts and vapour which are created during the process are to be extracted by corresponding devices by using filters or gas washers. Valid national regulations (e.g. StrlSchV, regulation 96/29/EAEC of the council) are to be met.

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8. Exposure controls and personal protection

Additional information about design of technical systems:

No further data; see part 7.

Components with critical values that require monitoring at the workplace:	
7440-33-7 Tungsten	
(TRGS-900 – Germany)	Short term exposure limit: 10 mg/m ³ Long term exposure limit: 5 mg/m ³ see chapter IIb
1314-36-9 Yttrium oxide	
(TRGS-900 – Germany)	n/a mg/m ³ see chapter IIb
1312-81-8 Lanthanum(III)-oxide	
(TRGS-900 – Germany)	Short term exposure limit: n/a mg/m ³ Long term exposure limit: n/a mg/m ³
1314-23-4 Zircon oxide	
(TRGS-900 – Germany)	1E mg/ m ³ 1(l)

Additional information:

The lists that were valid during the compilation were used as basis.

Personal protective equipment:

General protective and hygienic measures:

Do not eat, drink, smoke or snuff while working; hygienic working conditions, e.g. washing your hands.

Use skin protection cream for preventive skin protection.

Breathing equipment:

Extraction, particulate filtering mask (protection class P2) recommended at occurrence of dusts/aerosols. Protection class and type of mask are to be adapted to the actual dust loading, especially for cleaning and maintenance works.

Protection of hands:

Material of gloves:



Protective gloves

The protective gloves to be used have to comply with the specifications of the EU regulation 89/686/EEG. For full-contact and arc welding, protective gloves from KCL part no. 590 are suitable for example. These protective gloves comply with class 2 of EN 61482-1-1 "Live working - Protective clothing against the thermal hazards of an electric arc" and class 00 of EN 60903. This recommendation only applies for this product, delivered by us and for the use indicated by us. Please contact the supplier of CE-approved gloves in case of fragmentation or mixing with other substances (for example contact: KCL GmbH, D-36124 Eichenzell, phone ++49 (0) 6659 87300, fax ++49 (0) 6659 87155, e-mail vertrieb@kcl.de).

Eye protection:



Tightly sealed safety glasses.

Gauze goggles recommended.

Body protection:

Exposition environment:

Protective clothing (long trousers, long sleeve shirt); avoid uncovered skin.

Residual substrates, deposits and contaminated filters are to be deposited according to the valid national regulations (e.g. radiation protection regulation)

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9. Physical and chemical properties:

General Information	
Form:	Solid
Colour:	metallic grey
Smell:	odourless
Change in condition	
Melting point/Melting range:	3.680K
Boiling point/Boiling range:	5.828K
Flash point:	not applicable
self-in flammability:	Product is not self igniting.
Danger of explosion:	Product is not explosive.
Oxidizing properties:	not applicable
Vapour pressure at 20°C (mm Hg):	0 hPa
Density at 20°C	18,62 g/cm ³
Electrical conductivity	18,20 m/Ωmm ²
Change of state	
Solubility in / miscibility with water:	insoluble
Organic solvents:	0,0 % insoluble in grease high resistant against acids; slowly soluble in HNO ₃ + HF soluble in alkaline oxidation melts
Solids content:	100%

10. Stability and reactivity

Thermal decomposition /

conditions to be avoided:

Stability:

Conditions to be avoided:

Substances to be avoided:

Dangerous products of composition:

No decomposition if used according to specifications.

Product is stable under standard conditions. No decomposition if used according to specifications.

Oxidation at the presence of oxygen and increased temperatures (> 600°C), sublimation (tungsten trioxide WO₃, CAS 1314-35-8) from 977°C and up.

Contact with strong acids and/or base; or with halogens (fluorine, chlorine, bromine, iodine and their compounds); or with oxidizing agents (e.g. perchlorates, peroxides, permanganates, chlorates, nitrates, nitrites, chromates); or with alkaline-/alkaline earth metals (e.g. lithium, sodium, potassium, magnesium, calcium) can cause extreme reactions (danger of exothermic reaction, danger of inflammable gas formation, formation of noxious / toxic materials / gases) is to be prevented.

Oxidation produces oxides of the product which can evaporate (tungsten trioxide WO₃, CAS 1314-35-8) or are released.

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11. Toxicological information

Acute toxicity:	The product does not show any acute oral, dermal or respiratory toxicity.
W	LD ₅₀ oral, rat: >2000 mg/kg LD ₅₀ dermal, rat: >2000 mg/kg LC ₅₀ respiratory, rat: >5,4 mg/l, 4h exposition
La ₂ O ₃	Epidemiologically assured information concerning work-related diseases caused by lanthanoids resp. especially La ₂ O ₃ are not available. LD ₅₀ oral, rat: > 5 g/kg
Y ₂ O ₃	In an experiment with rodents acute toxicity (hastened respiration) could be detected after 4-hour inhalation of approx. 32 mg/m ³ and up. LD ₅₀ oral, rat: > 5 g/kg
ZrO ₂	Quantitative data are not available. After inhalation of dust: Neurological irritation on respiratory tract. Hazardous risks are considered to be minor.
Chronic toxicity:	Findings after intratracheal application of 50 mg T.-dust/week for three weeks to guinea pigs led to the estimation that the material is relatively inert. Nevertheless, a minor effect to the lung tissue (interstitial cellular proliferation) was detectable. T.-dust was added to the diet of very young rats in concentrations of 2; 5 or 10 % for 70 days. It caused a 15% reduction of the body weight gain for the female rats but not for the male rats.
Primary irritant effect:	
on the skin:	No irritant effect for making a classification.
on the eye:	No irritant effect for making a classification.
Sensitization:	No sensitizing effect known.
Additional toxicological information:	-

12. Ecological information:

General information:	Water hazard class: non-hazardous for water
Ecotoxicity:	Amphibians: LC50:2.9 mg/L (toad, Gastrophryne carolinensis, 7d) fishes: LC50:15.6 mg/L (rainbow trout, Oncorhynchus mykiss, 28d) Microbial degradation: Not applicable.
Mobility:	Tungsten compounds are found in soil resp. waters as wolframate (e.g. - WO ₄ ²⁻) and other polyanions. There are no existing reports about organic tungsten complexes. Absorption coefficient for tungsten increases according to declining pH-value (pH=5:100-50,000; pH=6.5:10-6,000; pH=8-9:5-90). According to these values there is little up to no mobility of tungsten compounds in soil and waters. In the natural environment tungsten compounds in form of ions or insoluble solid substances are found and therefore volatilization of soils and waters does not mean any significant environmental impact. Most tungsten compounds excel by low steam pressures at 25°C.
Persistence and degradability:	
Biodegradability:	Not applicable.
A biotic degradability:	Tungsten has various oxidation states (0, 2+, 3+, 4+, 5+, 6+), of which 6+ is the most stable one, the others are rather instable. In combination with one or several elements, like for example oxygen, tungsten appears as ion. Tungsten compounds are found in waters in form of wolframate (e.g. - WO ₄ ²⁻) and other polyanions. There are no existing reports about organic tungsten complexes. Divalent tungsten only exists as halogen compound. Tungsten has a strong tendency to form a complex (e.g. creating heteropoly acids with oxides of phosphor, arsenic, vanadium, silicon and others). Tungsten forms a series of oxohalogenides (e.g. WOC ₄).
Bioaccumulation potential:	No data available.
Additional information:	Water hazard class: Non-hazardous for water (WHC according to VwVwS of 17. May 1999)

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13. Disposal considerations

Waste disposal according to international, national and regional regulations. Please contact the corresponding institution.

Product:

Recommendation: Adhere to the national regulations.

Waste disposal key number: Please refer to EAK European Waste Catalogue (12 01 13 – welding wastes)

Uncleaned packagings: Can be treated as non-hazardous disposal.

Recommendation: Disposal must be carried out according to official regulations.

14. Transport information

Land carriage ADR/RID and GGVSEB (transnational/domestic):

ADR/RID-GGVSEB Class: -

Water carriage IMDG/GGVSea:

IMDG/GGVSea Class: -

Marine pollutant: No

Carriage by air ICAO-TI and IATA-DGR:

ICAO/IATA Class: -

UN "Model Regulation": -

Transport/Additional information: -

EU-regulations: -

15. Regulatory information

Designation according to EC-guidelines: Observe the normal safety regulations when handling chemicals.

Risk phrases: void

National regulations:

Information about limitation of use: Employment restrictions concerning young persons must be observed. (§22 EmploymentProtection Act)

Classification according to VbF: no longer valid - refer to PUWER (Provision and Use of Work Equipment Regulations)

Classification according to Provision and Use of Work Equipment Regulations (PUWER): -

Class Share in %: -

Water hazard class: Water hazard class: non-hazardous for water

Other regulations, limitations and prohibitive regulations:

Storage:

EU regulations: Store away from foodstuffs.
RL 67/548/EWG idgF (material regulation)
RL 99/45/EG idgF (preparation regulation)

German regulations: Professional associations: BGI 7468

Technical instruction air: TRGS 900

Other countries: Adhere to national regulations.

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16. Other information:

* Data compared to the previous version altered.

Abbreviations and acronyms:

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods IATA: International Air Transport Association
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
VbF: Verordnung über brennbare Flüssigkeiten, Österreich (Ordinance on the storage of combustible liquids, Austria)

This information is based on our present knowledge and does not assure properties in the legal sense. Statutory provisions have to be observed at one's own responsibility. The company can not be hold responsible for any damages caused during handling of or contact with the product above.

