

SAFETY DATA SHEET

TE001 Tungsten Electrodes (Non Thoriated)



Version number: 2
Replaces SDS: 2009-11-23
Issued: 2014-01-21

Not for sale in the USA
Ensure that this SDS is received by the appropriate person

Section 1. IDENTIFICATION OF THE SUBSTANCE / MIXTURE AND OF THE COMPANY / UNDERTAKING

1.1 Product identifier

Trade name BOC TUNGSTEN 0.8% ZIRCONIATED, 1.5% LANTHINATED and 2% CERIATED

Article-no

| Product/Article | Diameter(mm) | Packaging (pk/ea) | Part Number |
|-------------------------------------|--------------|-------------------|-------------|
| BOC TUNGSTEN 0.8% ZIRCONIATED WHITE | 1.6 | 10 | 68622 |
| | 2.4 | 10 | 68623 |
| | 3.2 | 10 | 68624 |
| BOC TUNGSTEN 1.5% LANTHINATED GOLD | 1.6 | 10 | 68625 |
| | 2.4 | 10 | 68626 |
| | 3.2 | 10 | 68627 |
| BOC TUNGSTENS 2% CERIATED GREY | 1.6 | 10 | 68619 |
| | 2.4 | 10 | 68620 |
| | 3.2 | 10 | 68621 |

1.2 Relevant identified uses of the substance or mixture and uses advised against

Article type GTAW (TIG) Gas tungsten arc welding ISO 6848

Use Gas shielded Arc welding

1.3 Details of the supplier of the safety data sheet

Supplier BOC Limited

Street address Customer Service Centre, Priestley Road,
Worsley, Manchester, M28 2UT,
United Kingdom

Telephone +44 (0)800 111 333

Fax +44 (0)800 111 555

Email custserv@boc.com

1.4 Emergency telephone number

Available outside office hours Yes

Emergency phone number +44 (0)800 111 333

Other

Additional product information Web site www.BOConline.co.uk

Section 2. HAZARDS IDENTIFICATION

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2.1 Classification of the substance or mixture

Classification according to Regulation (EC) 1271/2008[CLP] applicable

2.2 Label elements

Not applicable

2.3 Other hazards

Note: 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.

When the product is used in the welding process the most important hazards are:

Overexposure to fumes and gases from welding can be dangerous to health.

Watch out for splatter, hot metal and slag. It may cause skin burn and cause fire.

Arc rays can injure eyes and burn skin. Electric shock can kill. Avoid touching live electrical parts.

Section 3. COMPOSITION / INFORMATION ON INGREDIENTS

3.1 Substances

This product is a mixture and please refer to Section 3.2

3.2 Mixtures

| ISO Classification | W (min.) % | CeO ₂ % | La ₂ O ₃ % | ZrO ₂ % | Impurities mass % |
|--------------------|------------------|-----------------------|-------------------------------------|-----------------------|----------------------|
| CAS Number | 7440-33-7 | 1306-38-3 | 1312-81-8 | 1314-20-1 | |
| WCe 20 (Grey) | Balance | 1.8-2.2 | - | - | 0.5 max |
| WZr8 (White) | Balance | - | - | 0.7-0.9 | 0.5 max |
| WLa 15 (Gold) | Balance | - | 1.3-1.7 | - | 0.5 max |

Section 4. FIRST AND MEASURES

4.1 Description of first aid measures

| | |
|---------------------|--|
| Inhalation | IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms occur. |
| Skin contact | Burns should be treated by a doctor. |
| Eye contact | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Burns from radiation, see doctor. |
| Ingestion | Contact a doctor if more than an insignificant amount has been swallowed. |

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4.2 Most important symptoms and effects, both acute and delayed

Inhalation Inhalation of vapours may cause irritation of the respiratory system in very susceptible persons.

4.3 Indication of any immediate medical attention and special treatment needed

Not applicable

Section 5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media Carbon dioxide (CO₂), powder or diffuse jet of water. In case of major fire: Extinguish fire with diffuse jet of water or foam.

5.2 Special hazards arising from the substance or mixture

Not applicable

5.3 Advice for fire fighters

Special protective equipment for fire fighters Wear self contained breathing apparatus

Section 6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

General ventilation and local fume extraction must be adequate to keep fume concentrations within safe limits. Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding. Skin contact should be avoided to prevent possible allergic reactions.

6.2 Environmental precautions

Try to prevent the material from entering drains or water courses.

6.3 Methods and material for containment and cleaning up

Not applicable

6.4 Reference to other sections

For *Personal protection* see section 8. For *Disposal* see section 13. For *Environmental precautions* see section 12. For *Precautions for safe handling* see 7.1.

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Section 7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Preventive handling precautions Ensure adequate ventilation for the welder and others. Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding. Remove all flammable materials and liquids before welding.

General hygiene Wash hands before breaks and immediately after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Store welding consumables inside a room without humidity. Do not store welding consumables directly on the ground or beside walls. Store away from chemical substances like acids which could cause chemical reactions.

7.3 Specific end use(s)

Welding process.

Section 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

| Welding fume component | CAS No. | WEL ¹ 8hr TWA | STEL ² 15min TWA |
|-------------------------------------|------------|--------------------------------|-----------------------------------|
| Tungsten and compounds (as W) | | | |
| Soluble | 7440-33-7 | 1 | |
| Insoluble | | 5 | |
| Zirconium compounds (as Zr) | 7440-67-7 | 5 | 10 |
| Thorium compounds (as Th) | 7440-29-1 | | |
| Nitrogen dioxide (NO ₂) | 10102-44-0 | 0.5 ppm ³ | 0.95ppm ³ |
| Ozone (O ₃) | 10028-15-6 | 0.2 ppm ⁴ | |
| Nitrogen monoxide (NO) | 10102-43-9 | 0.5ppm ³ | 0.63ppm ³ |

¹ WEL Workplace exposure Limits

² STEL Short term exposure limit

³ As recommended by MAK Commission based on scientific experience and is not established law

⁴ As recommended by EH40 (2012) in the UK

8.2 Exposure controls

Environmental Exposure Controls – Refer to Section 6 of this SDS

Technical precaution measures General ventilation and local fume extraction must be adequate to keep fume concentrations within safe limits.

Eye / face protection Wear eye protection appropriate for welding.

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| | |
|-------------------------------|---|
| Safety gloves | Skin contact should be avoided to prevent possible allergic reactions. |
| Other skin protection | Wear body protection which helps to prevent injury from radiation, sparks and electric shock. |
| Respiratory protection | Use respiratory equipment when welding in a confined space. Wear protective clothing and eye protection appropriate to arc welding. |

Section 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

| | |
|---|--------------------|
| Appearance, colour | Grey |
| Appearance, physical state | Rod |
| Auto-ignition temperature | Not applicable |
| Auto-inflammability | Not auto-flammable |
| Decomposition temperature | Not applicable |
| Evaporation rate | Not applicable |
| Explosive properties | Not explosive |
| Flammability (solid gas) | Not applicable |
| Flash point | Not applicable |
| Form | Fast |
| Initial boiling point and boiling range | 5828K |
| Melting point / Freezing point | Not applicable |
| Odour | Odourless |
| Odour threshold | Not applicable |
| Oxidising properties | Not applicable |
| Partition coefficient: n-octanol / water | Not applicable |
| pH value | Not applicable |
| Relative density | Not applicable |
| Solubility | Not applicable |
| Solubility in water | Insoluble |
| Upper / lower flammability or explosive limits | Not applicable |
| Vapour density | Not applicable |
| Vapour pressure | Not applicable |
| Viscosity | Not applicable |

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9.2 Other information

Not applicable

Other

Density Depending on alloy grade 18.8g/cm³ to 19.2g/cm³

Section 10. STABILITY AND REACTIVITY

10.1 Reactivity

Not applicable

10.2 Chemical stability

Stable at normal conditions.

10.3 Possibility of hazardous reactions

Not applicable

10.4 Conditions to avoid

None under normal conditions

10.5 Incompatible materials

Not applicable

10.6 Hazardous decomposition products

Welding fumes and gases. Additional fume may arise from coatings and contaminants on the base material.

| Welding fume component | CAS No. | Classification (67/548EEC) | CLP (1272/2008) | | Concentration of classified fume components |
|--------------------------------|-----------|------------------------------|-----------------|---|---|
| Tungsten and its compounds (W) | 7440-33-7 | - | - | - | >95.8 |
| | | | | | 0.8 to 4.2 |
| Classification | H phrase | Text | | | |
| Acute Tox.: Category 4 | H302 | Harmful if swallowed | | | |
| | H312 | Harmful in contact with skin | | | |
| | H332 | Harmful if inhaled | | | |

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Section 11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Conditions to avoid: none in the form supplied

When welding, fumes and gases generated can be dangerous to health.

| | |
|-------------------------------|--|
| Acute toxicology | Excessive exposures may affect human health, as follows: Aspiration may cause pulmonary oedema and pneumonitis Short-term overexposure can cause dizziness, nausea and irritation of the nose, throat or eyes. |
| Irritation | Not applicable |
| Corrosive effects | Not applicable |
| Sensitisation | May cause sensitisation by skin contact |
| Mutagenicity | Not applicable |
| Carcinogenicity | Welding fumes are possibly carcinogenic to humans |
| Repeated dose toxicity | Not applicable |
| Reproductive toxicity | Not applicable |

Section 12. ECOLOGICAL INFORMATION

12.1 Toxicity

The welding process can effect the environment if fume is released directly into the atmosphere.

| | |
|----------------------------|--|
| Acute fish toxicity | LC ₅₀ Fish 96h: 15.6mg/L (rainbow trout, oncorhynchus mykiss, 28d) Aluminiumoxide: >100 mg/l Salmo trutta |
| Amphibians toxicity | IC ₅₀ Amphibians 72h: 2.9mg/L (toad, gastrophryne carolinensis, 7d) |

12.2 Persistence and degradability

Not applicable

12.3 Bio accumulative potential

No data available

12.4 Mobility in Soil

Not applicable

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12.5 Results of PBT and vPvB assessment

Not applicable

12.6 Other adverse effects

Not applicable

Section 13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Disposal considerations

Dispose of any product, residue or packing material according to national and local regulations. Spent fume extraction filters shall be disposed of as dangerous waste.

Other

Waste code (EWC)

12 01 13 – welding waste

Section 14. TRANSPORT INFORMATION

14.1 UN number

Not applicable

14.2 UN proper shipping name

Not applicable

14.3 Transport hazard class(es)

Not applicable

14.4 Packing group

Not applicable

14.5 Environmental hazards

Not applicable

14.6 Special precautions for user

Not applicable

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

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Other

Dangerous goods No

Section 15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations / legislation specific for the substance or mixture.

EU regulations The product does not need to be labelled in accordance with EC directives or respective national laws.
National regulations EH40/2005 Workplace exposure limits
The Waste Regulations 2011 No. 988
Local laws and regulations should be carefully observed.

15.2 Chemical safety assessment

Not applicable

Section 16. OTHER INFORMATION

References to key literature and data sources Regulation (EC) No 1907/2006 of the European Parliament and of the Council, (REACH).
Regulation (EC) No 1272/2008 of the European Parliament and of the Council.
EH40/2005 Workplace exposure limits.
The Waste regulations 2011 No.988
C&L Inventory database
Annex VI CLP Regulation (EC) 1272/2008

Phrase meaning

| | |
|------|------------------------------|
| H302 | Harmful if swallowed |
| H312 | Harmful in contact with skin |
| H332 | Harmful if inhaled |

Other

Manufacturer's notes Read this Safety Data Sheet carefully and become aware of hazards implied and the safety information.

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