



SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008 and ISO 11014-1

Page 1(4)
SDS number: 1520/04
Date: 2012-11-30
Product: Tungsten Electrode
Thoriated WT20

SECTION 1: IDENTIFICATION OF THE MIXTURE AND OF THE COMPANY

1.1. Product identifier :

Tungsten Electrode, Thoriated, WT20

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

Arc Welding

1.3. Details of the supplier of the safety data sheet :

ESAB AB, Box 8004, 402 77 Göteborg, Sweden. sds.esab@esab.se

Telephone no.: +46 31 509000

1.4. Emergency telephone number:

+46 31 509000 office hours

Web site: www.esab.com

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the mixture:

Classification according to Directive 1999/45/EC:

This product is not classified.

2.2. Label elements :

No symbol

R-phrases :

None

2.3. Other Hazards :

This product contains thorium oxide, which is radioactive α -emitter and may cause cancer. Thorium oxide has a specific activity of 3568 Bq/g. No immediate hazard by Thorium oxide because of the tungsten matrix. Accumulation in the body, e.g. by prolonged exposure through inhalation of WTh-dust, may cause serious damage to health.

Avoid eye contact or inhalation of dust from the product. Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions.

Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

When this product is used in a welding process, the most important hazards are heat, radiation, electric shock and welding fumes.

Heat: Spatter and melting metal can cause burn injuries and start fires.

Radiation: Radioactive, α -emitter.

Arc rays from welding can severely damage eyes or skin.

Electricity: Electric shock can kill.

Fumes: Very small amounts of welding fumes are normally produced by TIG welding. Overexposure to welding fumes may result in symptoms like dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

This product is a solid metal rod.

Wire Composition	Weight %	CAS#	EC#	Hazard classification ⁽¹⁾	Hazard classification ⁽²⁾
Tungsten	>90	7440-33-7	231-143-9	No	No
Thorium oxide	1-2	1314-20-1	215-225-1	No	No

⁽¹⁾ Hazard Classification according to Directive 67/548/EEC, for R-phrases see heading 16.

⁽²⁾ Hazard Classification according to Regulation (EC) No 1272/2008, for H-Statements see heading 16.

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

Inhalation: Remove from exposure, provide fresh air.

If breathing is difficult, call physician. If breathing has stopped, perform artificial respiration and obtain medical assistance immediately!

Eye contact: For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

Skin contact: For skin burns from arc radiation, promptly flush with cold water. Get medical attention for irritation or burns that persist. To remove dust or particles wash with mild soap and water.

Electric shock: Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician.

General: Move to fresh air and call for medical aid.

Never give anything by mouth to an unconscious person.

4.2. Most important symptoms and effects, both acute and delayed:

Refer to 4.1.

4.3. Indication of any immediate medical attention and special treatment needed:

Refer to 4.1.



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This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008 and ISO 11014-1

Page 2(4)
SDS number: 1520/04
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Thoriated WT20

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:
Substance is not combustible, adapt extinguishing media to surrounding area.
5.2. Special hazards arising from the mixture:
Fumes or vapors may be harmful.
5.3. Advice for firefighters:
Personal protection:
Wear self-contained breathing apparatus as fumes or vapors may be harmful
General information:
Do not breathe fumes. Avoid pollution of sewers and water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures:
refer to section 8
6.2. Environmental precautions:
refer to section 13
6.3. Methods and material for containment and cleaning up:
Solid objects may be picked up and placed into a container. Do not discard as refuse.
Avoid pollution of sewers, groundwater and soil. Avoid formation of airborne dust.
Ensure effective ventilation.
Wear proper protective equipment while handling these materials.
6.4. Reference to other sections:
refer to section 7

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling:
Avoid exposure to dust from the product. Avoid formation of airborne dust, install exhaustion at workplaces with unavoidable dust.
Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust.
Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Some individuals can develop an allergic reaction to certain materials.
Keep packaging closed when not in use. Retain all warning and identity labels.
Do not ingest. Smoking, eating and drinking is prohibited in areas of storage and use.
7.2. Conditions for safe storage, including any incompatibilities:
Keep packaging tightly closed, in a cool and well ventilated area. Store away from working area (radiation).
7.3. Specific end use(s):
N.a

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits.

Substance	CAS#	ACGIH TLV ⁽¹⁾ mg/m ³	UK WELs ⁽²⁾ mg/m ³
Tungsten	7440-33-7	5	5
Thorium oxide	1314-20-1	-	-

⁽¹⁾ Threshold Limit Values according to American Conference of Governmental Hygienists, 2012.

⁽²⁾ United Kingdom, Workplace Exposure Limits, Time Weighted Average (8h), 2012.

Dose limit for members of the public is 1 mSv/year.

8.2. Exposure controls:

Avoid formation of airborne dust from this product, ensure sufficient ventilation, local exhaust, or both, to keep dust from this product, as well as welding fumes and gases from breathing zone and general area. Keep working place and protective clothing clean and dry.
Train welders to avoid contact with live electrical parts and insulate conductive parts.
Check condition of protective clothing and equipment on a regular basis.

Personal protective equipment:

When grinding tungsten electrodes, use protective mask.
Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient.
In case of exposure to dust use protective mask P2.
Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted.
Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection.
Keep protective clothing clean and dry. Remove dust by washing or vacuuming.
Periodical medical examinations are recommended for individuals regularly exposed to dust from these electrodes.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

Appearance: Solid, grey, non-volatile
Melting point: >3410°C
Density: 19.3 g/cm³ at 20°C
Solubility: Insoluble in water.

9.2. Other information:

N.a

SECTION 10: STABILITY AND REACTIVITY



SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008 and ISO 11014-1

Page 3(4)
SDS number: 1520/04
Date: 2012-11-30
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Thoriated WT20

10.1. Reactivity:

High temperatures in air. Oxidation at temperatures >400°C, sublimation of WO₃ at about 850°C.

10.2. Chemical stability:

This product is stable under normal working and storage conditions.

10.3. Possibility of hazardous reactions:

No data available

10.4 Conditions to avoid:

None known.

10.5. Incompatible materials:

Avoid contact with strong acids.

10.6. Hazardous decomposition products:

When this product is used in a welding process, hazardous decomposition products would include those from the volatilization, reaction or oxidation of the materials listed in section 2 and those from the base metal and coating.

General: This product is only intended for normal welding purposes.

The amount of fumes generated when this product is used in a welding process is normally very small. Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects:

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity:

Eye contact: May cause dryness or irritation.

Inhalation: Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Chronic toxicity:

Inhalation: Radioactive substance, Thorium oxide, α -emitter, danger of serious damage to health by prolonged exposure, can cause cancer.
Overexposure to tungsten may cause lung damage.
Overexposure to welding fumes may affect pulmonary function.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity:

No data available

12.2. Persistence and degradability:

No data available

12.3. Bioaccumulative potential:

No data available

12.4. Mobility in soil:

No data available

12.5. Results of PBT and vPvB assessment:

N.a

12.6. Other adverse effects:

N.a

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process.

Avoid exposure to conditions that could lead to accumulation in soils or groundwater.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods:

Dispose as radioactive waste according to national regulations.

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available.

Residues from welding consumables and processes could degrade and accumulate in soils and groundwater.

SECTION 14: TRANSPORT INFORMATION

14.1. UN number:
UN 2909

14.2. UN Proper shipping name:
Radioactive substances, excepted packages— products made of natural thorium.

14.3. Transport hazard class(es):

N.a

14.4. Packing group:

N.a

14.5. Environmental hazards:

No data available

14.6. Special precautions for user:



SAFETY DATA SHEET

This Safety Data Sheet complies with Regulation (EC) No 1907/2006, 1272/2008 and ISO 11014-1

Page 4(4)
SDS number: 1520/04
Date: 2012-11-30
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Thoriated WT20

N.a

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

N.a

SECTION 15: REGULATORY INFORMATION

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

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

WARNING: Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Wear correct hand, head, eye and body protection.

ELECTRIC SHOCK can kill. ARC RAYS and SPARKS can injure eyes and burn skin.

Directive 96/29/Euratom. No labelling required. Notice national regulations.

15.2. Chemical safety assessment:

No data available

SECTION 16: OTHER INFORMATION

Refer to ESAB "Welding and Cutting - Risks and Measures", F52-529 "Precautions and Safe Practices for Electric Welding and Cutting" and F2035 "Precautions and Safe Practices for Gas Welding, Cutting and Heating" available from ESAB, and to:

UK: WMA Publication 236 and 237, "Hazards from Welding fume", "The arc welder at work, some general aspects of health and safety".

Germany: Unfallverhütungsvorschrift BGV D1, "Schweißen, Schneiden und verwandte Verfahren".

This Safety Data Sheet has been revised due to modifications to headings and subheadings. This SDS supersedes 1520/03.

H-statements:

None

ESAB request the users of this product to study this Safety Data Sheet (SDS) and become aware of product hazards and safety information. To promote safe use of this product a user should:

- notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.
- furnish this same information to each of its customers for the product.
- request such customers to notify employees and customers for the same product hazards and safety information.

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R-phrases:

None