

Safety Data Sheet

No : SDS251210

Creation Date : Dec.10. 2025

Section 1 - Chemical Product and Company Identification

1.1 Product Identification:

Product Name: Welding Accessories (Tungsten Electrode)

Product Models: WT20

1.2 Details of the Manufacture or supplier:

Manufacturer/Supplier 1: VANGUARD STEEL LTD.

Address: 2160 Meadowpine Blvd., Mississauga, Ontario, Canada L5N 6H6

Telephone: 905-821-1100

Section 2 - Hazards Identification

2.1 This product is not classified as dangerous according to the GHS (The Globally Harmonized System of Classification and Labelling of Chemicals). However, dust or smoke generated during processing (grinding or welding) may pose health hazards.

2.2 GHS Label elements, including precautionary statements:

Hazard Pictogram(s):



Health hazard
(may cause or suspected of causing serious health effects)



Exclamation mark
(may cause less serious health effects or damage the ozone layer*)



Environment*
(may cause damage to the aquatic environment)

2.3 Description of any hazards not otherwise classified:

These products are hard, brittle, silvery-gray metal electrodes. The chief health hazard associated with these products would be the inhalation of fumes generated by welding or dusts and powdered, formed if grinding operations are performed on the product. When exposed to extremely high temperatures, these products will produce irritating oxides of tungsten. These electrodes present no significant fire hazard; however finely divided metal powder which may be generated during grinding of the tips of electrodes, is highly flammable (especially when exposed to oxidizing compounds at elevated temperatures). In some circumstances, powdered tungsten can be spontaneously flammable see section 11 for more detailed information on health effects and symptoms.

Section 3 - Composition/Information on Ingredients

Substance () Preparation () Article (✓)

Composition :

Chemical name	CASNo.	Content(%)
Tungsten	7440-33-7	98.00
ThO2	1314-20-1	1.98
Trace Impurity (Fe, Ni, Al Ca, Mg, Si,O, Mo, C, P, Cu,As, Sb, Pb, Sn, Mn, Cr, Bi, Ti, V, Cd,K, Na)	7439-89-6	MAX0.02~0.0197

Abbreviation: CAS No. is Chemical Abstract Service Registry Number

Section 4 - First Aid Measures**4.1 Description of first aid measures:**

Eye Contact: Not expected to contact eyes under normal usage. If dusts or powders contact eyes, Flush eyes with water as a Precaution.

Skin Contact: If dusts or powders from these products contaminates the skin, immediately begin decontamination with running water. If skin irritation persists, seek medical attention.

Inhalation: If powders generated from grinding of the tips of these electrodes are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.

Ingestion: Ingestion is not a likely exposure under normal conditions. However, Seek medical attention if material is ingested.

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

Medical conditions aggravated by exposure: Skin disorders may be aggravated by prolonged over-exposures to fumes generated during welding or to powders generated during grinding of tips of the electrodes. Chronic over-exposure to Tungsten powders via inhalation can aggravate lung disorders.

Section 5 - Firefighting Measures**5.1 Extinguishing media:**

Suitable extinguishing media:

For Electrode: Not flammable. Use the extinguishing media appropriate for the fire. E.g. Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

For Powders of Tungsten: Powders of Tungsten are considered to be a Class D Fires. Use Soda-Ash, Lime, DRY Sand (Purple K, if available)

Unsuitable extinguishing media: None known

5.2 Special hazards arising from the substance or mixture

When exposed to extremely high temperatures, these products will produce irritating oxides of tungsten etc .. (depending on composition - see Section 2, Composition and Information on Ingredients). These electrodes present no significant fire hazard. Finely-divided tungsten powder, however, is highly flammable (especially when exposed to oxidizing compounds at elevated temperatures).

5.3 Advice for firefighters

Wear self-contained breathing apparatus and standard fire fighting equipment for firefighting if necessary.

5.4 Further information

No data available

Section 6 - Accidental Release Measures

For guidance on selection of personal protective equipment see Chapter 8 of this Material Safety Data Sheet. See Chapter 13 for information on disposal. Observe the relevant local and international regulations

6.1 Personal precautions, protective equipment and emergency procedures: Not required with spills of this product, because of its solid form. If there is a dust generation, Use suitable personal protective equipment

6.2 Environmental precautions: No special environmental precautions required

6.3 Methods and materials for containment and cleaning up: Pick up mechanically. No special measures required.

Section 7 - Handling and Storage

7.1 Precautions for safe handling:

After the end of work shift, hands and other exposed skin should be thoroughly washed. Do not eat or drink during use of these products. Use ventilation and other engineering controls to minimize potential exposure to fumes during welding operations or to dusts if tips of electrodes are ground. Follow good house-keeping practices to ensure powders or dusts from grinding operations do not accumulate, which can be highly flammable. Tungsten - Lanthanum Oxide alloys are generally safe to handle during use and almost all normal conditions and environments. Routine wet-mopping or vacuuming with an explosion-proof vacuum, fitted with a HEPA filter may be considered to reduce accumulation of dusts

All employees who handle these materials should be trained to handle it safely. Avoid breathing dusts or powders generated during grinding of electrode tips. Open packages and containers of these products slowly. Packages and containers of these products must be properly labeled

When these products are used during welding operations, follow the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the safety standards of the American National Standards Institute for welding and cutting (ANSI Z49 .1). Empty containers, which held these products, may still contain dusts from the products; therefore, such containers should be handled with care

7.2 Conditions for safe storage, including any incompatibilities:

Store in cool place. Keep container tightly closed in a dry and well-ventilated place.

Section 8 - Exposure Controls / Personal Protection

8.1 Exposure Limits:

Not established for the finished product. The following exposure limit is recommended in Workplace.

Substance	CAS No.	OSHA PEL	NIOSH REL	ACGIH
Tungsten The exposure limits provided are for "Tungsten and Insoluble Compounds"	7440-33-7	TWA: 5 mg/cm ³ STEL: 10 mg/cm ³	TWA: 5 mg/cm ³ STEL: 10 mg/cm ³	TWA: 5 mg/cm ³ STEL: 10 mg/cm ³
Lanthanum Oxide (La ₂ O ₃)	312-81-8	Not established	Not established	Not established

8.2 Exposure controls

Engineering Control: General industrial hygiene practice. Provide appropriate exhaust ventilation at places where dust is formed.

Prudent practice is to ensure eyewash/safety shower stations are available near areas where these products are used.

Personal protective equipment:

Respiratory Protection: Maintain airborne contaminant concentrations below exposure limits. If respiratory protection is needed (i.e. a Weld Fume Respirator, or Air-Line Respirator for welding in confined spaces), U.S. Federal OSHA Standard (29CFR 1910.134), applicable U.S. State regulations, or the Canadian CSA Standard Z94.4-93 and applicable standards of

Canadian Provinces. Respiratory Protection is recommended to be worn during welding operations. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-facepiece pressure/demand SCBA or a full facepiece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection.

Standard(1910.134-1998) **Eyes Protection:** When used in conjunction with welding, wear safety glasses, goggles or face-shield with filter lens of appropriate shade number (per ANSI Z49 .1-1988, "Safety in Welding and Cutting"), as necessary.

Body Protection: Not required. Wear suitable worksuit if necessary.

Hands Protection: Wear gloves for routine industrial use When used in conjunction with welding, wear gloves that protect from sparks and flame (per ANSI Z49 .1-1988, "Safety in Welding. Other Protections: Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Section 9 - Physical and Chemical Properties

Information on basic physical and chemical properties	
Appearance	Silver solid
Odor	Odorless
pH	Not applicable
Melting point/freezing point	3410°C
Initial boiling point and boiling range	5900°C
Flash point	Not available
Evaporation rate	Not available
Flammability	Not available
Upper explosive limit %(VN)	Not available
Lower explosive limit% (VN)	Not available
Vapor pressure	Not available
Vapor density	Not available
Relative density(water=1)	19.3
Solubility(ies)	Insoluble in water
Partition coefficient: n-octanol/water	Not available
Auto-ignition temperature	Not available
Decomposition temperature	Not available
Viscosity	Not available

Section 10 – Stability and Reactivity

10.1 Stability: Normally stable.

10.2 Conditions to Avoid: Avoid exposure to extreme temperatures and incompatible chemicals

10.3 Incompatible materials:Bromine, chloride trifluoride, Potassium dichromate, Nitryl Flouride, Fluorine, Oxygen difluoride,

Hydrogen sulfide gas, Peroxides, lead oxide, Oxidizing agents

10.4 Hazardous Decomposition Products: Other decomposition products- no data available. In the event of fire: see section 5

10.5 Possibility of hazardous reactions: None hazardous reactions known.

Section 11 – Toxicological Information

Acute Toxicity: No data available.

Skin Corrosion/Irritation: No irritating effect.

Serious Eye Damage/Eye Irritation: No irritating effect.

Respiratory or Skin Sensitization: No sensitizing effects known.

Germ Cell Mutagenicity: Based on available data, the classification criteria are not met.

Carcinogenicity: None of the components of this product is listed as a carcinogen by IARC, NTP, US OSHA or the European Directive (67 /548/EEC).

Reproductive Toxicity: Based on available data, the classification criteria are not met.

Specific Target Organ Toxicity - Single Exposure (Globally Harmonized System): No human health effects upon single exposure.

Specific Target Organ Toxicity - Repeated Exposure (Globally Harmonized System): No human health effects upon repeated exposure.

Aspiration Hazard: Based on available data, the classification criteria are not met.

Potential Acute Health Effects:

Symptom of over-exposure by route of exposure: The most significant routes of over-exposure to these products is inhalation of fumes generated during welding operations or of dusts generated by grinding operations

Inhalation: Inhalation of fumes generated from welding operations and to powders generated by grinding of the electrode tips, can cause irritation of the nose, throat, and respiratory system. Symptoms of such over-exposure can include sneezing, coughing, and a sore throat. Inhalation of Tungsten fumes has the potential for causing transient or permanent lung damage. Additionally, short-term over-exposure to welding fumes may result in discomfort, dizziness, nausea, and irritation of the eyes, nose, and throat. Chronic inhalation of large amounts of particulates generated by these products during metal processing operations can result in pneumoconiosis (a disease of the lungs).

Contact with skin or eyes: Contact with skin and eyes can be irritating, especially areas which have been over-exposed to Tungsten powders. Symptoms of skin contact include irritation and redness; prolonged or repeated skin over-exposures to Tungsten powders can lead to dermatitis. Symptoms of eye contact include pain, redness, irritation, and tearing. Skin absorption:

Skin absorption is not a significant route of over-exposure for these products, or their components. Chronic:

Chronic inhalation of large amounts of particulates generated by these products during metal processing operations can result in pneumoconiosis (a disease of the lungs). Prolonged or repeated skin over-exposures to Tungsten powders can lead to dermatitis. Inhalation of Tungsten fumes during welding operations has the potential for causing transient or permanent lung damage.

Section 12 – Toxicological Information

12.1 Toxicity

No data available

12.2 Persistence and degradability

Tungsten will slowly react with water, oxygen, and other compounds to form a wide variety of tungsten compounds

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1 % or higher.

12.6 Other adverse effects

Due to the product size and the product's form, these products are not anticipated to cause adverse effects on aquatic life, however, large releases of Tungsten into a body of water may be harmful to aquatic plants and animals

Section 13 –Disposal Considerations

Waste treatment methods

Product

Firstly should consider the recovery or recycling as possible. Disposal must be made according to local and national regulations. Offer non-recyclable products to a licensed disposal company. Do not dump into any sewers, on the ground or into any body of water.

Contaminated packaging

Dispose of as unused product.

Section 14 - Transport Information

14.1 UN Number: ADR, IMDG, IATA

ADR/RID: Not regulated as dangerous goods

IMDG: Not regulated as dangerous goods

IATA: Not regulated as dangerous goods

14.2 UN proper shipping name: ADR, IMDG, IATA

ADR/RID: Not dangerous goods

IMDG: Not dangerous goods

IATA: Not dangerous goods

14.3 Transport hazard class(es):ADR, IMDG, IATA

ADR/RID: Not regulated as dangerous goods.

IMDG: Not regulated as dangerous goods

IATA: Not regulated as dangerous goods

14.4 Packing group:ADR, IMDG, IATA

ADR/RID: Not regulated as dangerous goods

IMDG: Not regulated as dangerous goods

IATA: Not regulated as dangerous goods.

14.5 Environmental hazards: No.

Section 15 – Regulatory Information

EU Regulations

Classification according to 67/548/EEC or 1999/45/EC and Japan regulations Industrial Safety and Health Law

Not a hazardous substance or mixture according to EC-directives 67/548/EEC or 1999/45/EC

Classification according to Regulation (EC) No 1272/2008 [EU-GHS/CLP]

Not a hazardous substance or mixture according to Regulation (EC) No. 1272/2010

US Regulations

TSCA Inventory Status: All of the components of this product are listed or exempt from the TSCA inventory.

OSHA: None of the components in this product are considered highly hazardous by OSHA

Health & Safety Reporting List: None of the components are on the

International Chemical Substances list:

CAS No.	EINEC	TSCA	DSL	IECSC	NZioC	PICCS	KECI	AICS
7440-33-7	listed	listed	listed	listed	listed	listed	listed	listed
1314-20-1	listed	listed	listed	listed	listed	listed	listed	listed

Note:

EINECS: European Inventory of Existing Commercial Chemical Substances

TSCA: TSCA Chemical Substance Inventory

DSL: Canada Domestic Substance List

IECSC: Inventory of Existing Chemical Substances in China

NZioC: New Zealand Inventory of Chemicals

PICCS: Philippines Inventory of Chemicals and Chemical Substances

KECI: Korea Existing Chemicals Inventory

AICS: Australian Inventory of Chemical Substances

Section 16 – Additional Information

PH - Relates to hydrogen ion concentration - this value will relate to a scale of 0 - 14, where 0 is highly acidic and 14 is highly alkaline.

OSHA- Occupational Safety and Health Administration

NTP - National Toxicology Program

IARC- International Agency for Research on Cancer

CAS# - Chemical Abstract Service number - used to uniquely identify chemical compounds

ACGIH - The American Conference of Governmental Industrial Hygienists

ADR - Agreement on Dangerous Goods by Road

IATA - International Air Transport Association

IMDG - International Maritime Dangerous Goods

Further Information:

-This safety data sheet was prepared in accordance with UN GHS Rev.6, The EU CLP REGULATION (EC) No 1272/2008, and ANSI Z400.1

-The above information is based on the data of which we are aware and is believed to be correct as of the date hereof.

Since this information may be applied under conditions beyond our control and with which may be unfamiliar and since data made available subsequent to the data hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose

Department Issuing MSDS: VANGUARD STEEL LTD.

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