



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 4, 2021

Jeremy Clinkenbeard
Director, Safety and Compliance
ORS Nasco, LLC
907 S. Detroit Ave
Tulsa, OK 74120

SUBJECT: SUSPENSION OF REVIEW OF NEW LICENSE APPLICATION DATED JUNE 10, 2021 FOR ORS NASCO, LLC

Dear Mr. Clinkenbeard:

We have reviewed your new license application dated June 10, 2021, for a U.S. Nuclear Regulatory Commission (NRC) license. You have requested to distribute welding electrodes containing thorium. Your application is available electronically from the Agencywide Documents Access and Management System (ADAMS) at Accession No. ML21189A380.

Based on the review, our office determined that additional information was needed from you to continue review of your new license application. Accordingly, we prepared and sent you a written request for additional information via e-mail dated August 18, 2021. As discussed subsequently via emails in mid-September 2021, the application is lacking required information. To date, that information has not been provided to our office. In our conversation, you indicated that you needed additional time to gather, prepare, and submit the requested information. Accordingly, as discussed, we have suspended review of your application pending receipt of the additional requested information. Due to the delay in receiving the additional requested information that is necessary for review of your application, the NRC cannot project when it will make a determination on the application request. Once a complete response is received, the NRC will provide an updated date for the NRC to complete its review. If an adequate response is not received by September 30, 2022, the NRC will administratively close or deny the request, as appropriate.

Note that if your request is administratively closed, you may submit a new request at a later date and refer to Control No. 627220 for the documentation you have already submitted. If you resubmit the application within 12 months from the date of your original new license application, any fees paid to date will be credited toward the application fee.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390 of NRC's "Rules of Practice and Procedure," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from ADAMS, accessible from the NRC Web site at <https://www.nrc.gov/reading-rm/adams.html>.

If you have any questions regarding your Exempt Distribution License, you may contact me at (301) 415-7640, or by electronic mail at Shirley.Xu@nrc.gov.

Sincerely,

**Maria Del Mar
Arribas-Colon**

Digitally signed by Maria
Del Mar Arribas-Colon
Date: 2021.10.04 15:18:48
-04'00'

Maria Arribas-Colon, Branch Chief
Materials Safety and Tribal Liaison Branch
Division of Materials Safety, Security, State,
and Tribal Program
Office of Nuclear Material Safety
and Safeguards

Docket No. 040-38413
Mail Control No. 627220



TUNGSTEN ELECTRODES FOR WELDING

IMPORTANT!

THIS IS A CONDENSED VERSION OF A SAFETY DATA SHEET (S.D.S.). READ THE FULL SDS BEFORE USING THIS PRODUCT

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS LITERATURE. ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES. The information contained herein relates only to the specific product. If the product is combined with other materials, all component properties must be considered. BE SURE TO CONSULT THE LATEST EDITION OF THE FULL SAFETY DATA SHEETS (SDS). SAFETY DATA SHEETS ARE AVAILABLE FROM Best Welds.

STATEMENT OF LIABILITY – DISCLAIMER

To the best of Best Welds's knowledge, the information and recommendations contained in this publication are reliable and accurate as of the date prepared. However, accuracy, suitability, or completeness are not guaranteed, and no warranty, guarantee, or representation, expressed or implied is made by Best Welds, as to the absolute correctness or sufficiency of any representation contained in this and other publications. Best Welds assumes no responsibility in connection therewith; nor can it be assumed that all acceptable safety measures are contained in this and other publications, or that other or additional measures may not be required under particular or exceptional conditions or circumstances. Data may be changed from time to time. CAUTION! FUMES MAY BE HARMFUL IF INHALED. FUMES CAN CAUSE RESPIRATORY, SKIN AND EYE IRRITATION. HOT ELECTRODES CAN CAUSE THERMAL BURNS.

SECTION 1 – IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

Table with 2 columns: Field Name and Value. Fields include GHS Product Identifier, Recommended use, Supplier, Address, Emergency Telephone No., Information Telephone No., SDS Version Number, and Date of Preparation.

SECTION 2 - HAZARD IDENTIFICATION

There are no immediate hazards with these electrodes. The chief acute health hazard associated with these products is inhalation of fumes during welding operations. The inhalation of fumes generated by welding or dusts and powders, formed if grinding operations are performed on the product. These electrodes that contain Thorium Oxide have a special hazard if dusts or powders are produced and inhaled during use or grinding of tips of the electrodes, as thorium compounds are suspected of being cancer-causing compounds. When exposed to extremely high temperatures, these products will produce irritating oxides of cerium, thorium, tungsten and zirconium. 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.

CARCINOGENICITY STATUS: Chemicals in these electrodes are listed, as follows. THORIUM OXIDE: IARC-1, Carcinogenic to Humans ZIRCONIUM OXIDE: TLV-A4, Not Classifiable as to Human Carcinogenicity The other components of these products are not found on the following lists: FEDERAL OSHA Z LIST, NTP, IARC, and CAL/OSHA, and therefore are not considered to be, nor suspected to be, cancer-causing agents by these agencies.

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65): Thorium Oxide is a component of some of these alloys and is on the Proposition 65 list. The State of California requires the following information: WARNING: This product can expose you to chemicals including Chromium hexavalent compounds, and when used for welding may produce fumes or gases containing chemicals, known to the State of California to cause cancer, and/or birth defects (or other reproductive harm).

- 2.1 Classification of the mixture: The product is placed on the market in solid form
2.1.1 Classification in accordance with GHS-US
STOT-RE 1 H315 Causes skin irritation
STOT-SE 1 H335 May cause respiratory irritation
STOT-RE 1 H372 Causes damage to organs through prolonged or repeated exposure
Aquatic Acute 1 H400 Very toxic to aquatic life
Aquatic Acute 1 H410 Very toxic to aquatic life with long-lasting effects
2.2 Label elements:
GHS-US labelling
Hazard Pictograms (GHS-US):
Signal word (GHS-US):
Hazard statements (GHS-US):
H317 May cause an allergic skin reaction
H319 Causes eye irritation
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
H340 Suspected of causing genetic defects
H351 Suspected of causing cancer
Precautionary statements:
P201 Obtain special instructions before use
P202 Do not handle until all safety precautions have been read and understood
P260 Do not breathe dust / fume / gas / mist / vapours / spray
P261 Avoid breathe dust / fume / gas / mist / vapours / spray
P264 Wash thoroughly after handling
P270 Do not eat, drink or smoke when using this product
P272 Contaminated work clothing should not be allowed out of the workplace
P273 Avoid release into the environment
P280 Wear protective gloves
P284 In case of inadequate ventilation wear respiratory protection
P308+P313 IF exposed: Call a POISON CENTER or doctor / physician
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing. If eye irritation persists seek medical advice / attention
P342+P311 IF experiencing respiratory symptoms: Call a POISON CENTER and / or doctor / physician
P302+P352 IF ON SKIN: Wash with plenty of soap and water
P333+P313 IF skin irritation or rash occurs: Get medical advice / attention
P363 Wash contaminated clothing before reuse
P308+P311 IF exposed or concerned: Seek medical advice / attention. Collect spillage
P402+P404 Store in a dry place. Store in a closed container

For thoriated tungsten electrodes, store in tightly closed containers in a cool and well-ventilated area. Nobody should remain permanently or longer than necessary in close proximity to the stored thoriated tungsten electrodes as the electrodes may emit alpha, beta and gamma radiation. Additional measures should be taken to protect from such possible alpha, beta and gamma radiation. Thoriated tungsten electrodes may be incompatible with some strong acids.
P501 Dispose of contents and container in accordance with local regional / national international regulations.
2.3 Other hazards: No additional information available
2.4 Unknown acute toxicity (GHS-US): No data available

SECTION 3 - COMPOSITION / INFORMATION ON INGREDIENTS

Table with 9 columns: TRADE NAME, ISO 6848, AWS AS.12, Tip Color, W (Min.), CeO2, La2O3, ThO2, ZrO2. Rows include PURE TUNGSTEN, 1% THORIATED TUNGSTEN, 2% THORIATED TUNGSTEN, 1% LANTHANATED TUNGSTEN, 1.5% LANTHANATED TUNGSTEN, 2% LANTHANATED TUNGSTEN, 2% CERIATED TUNGSTEN, 0.3% ZIRCONIATED TUNGSTEN, and 0.8% ZIRCONIATED TUNGSTEN.

SECTION 4 - FIRST-AID MEASURES

SKIN: If the product's fumes irritate the skin, begin decontamination with running water. Minimum flushing is for 15 minutes.
EYES: If the product's fumes irritate the eyes, flush eyes under gently running water. Minimum flushing is for 15 minutes.
INHALATION: Move victim to fresh air. If necessary, use artificial respiration.
INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel.
Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.
VICTIMS OF CHEMICAL EXPOSURE MUST BE TAKEN FOR MEDICAL ATTENTION, ESPECIALLY IF ADVERSE EFFECTS CONTINUE AFTER FIRST-AID TREATMENT.

SECTION 5 - FIRE-FIGHTING MEASURES

- 5.1 Extinguishing media :
 Suitable extinguishing media : Use extinguishing media appropriate for surrounding fire.
 Unsuitable extinguishing media : No data available.
- 5.2 Special hazards arising from the substance or mixture : Fire may produce irritating or poisonous gases.
 Fire hazard : Not flammable.
 Explosion hazard : None known.
- 5.3 Advice for fire-fighting : In the event of fire, wear self-contained breathing apparatus and full protective gear.

SECTION 6 - ACCIDENTAL RELEASE MEASURES

- 6.1 Personal precautions, protective equipment and emergency procedures :
 For non-emergency personnel : Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.
 For emergency responders : No data available.
- 6.2 Environmental precautions : Avoid release into the environment. Avoid dispersal of spilled material and contact with soil, ground and surface water drains and sewers.
- 6.3 Methods and material for containment and cleaning up : Take up mechanically. Collect the material in labelled containers and dispose of according to local and regional authority requirements.
- 6.4 Reference to other sections : See Section 7 for information of safe handling. See Section 8 for information on personal protection equipment. See Section 13 for disposable information.

SECTION 7 - HANDLING and STORAGE

All employees who handle these materials should be trained to handle them safely. Avoid breathing fumes during welding operations. Store these electrodes in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible chemicals (see Section 10, Stability and Reactivity). Inspect all incoming containers before storage to ensure they are properly labeled and not damaged. If these products are used during welding operations, it is recommended that the requirements of the Federal Occupational Safety and Health Welding and Cutting Standard (29 CFR 1910 Subpart Q) and the Standards of the American National Standards Institute for Welding and Cutting (ANSI Z49.1) be followed. 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 housekeeping practices to ensure powders or dusts from grinding operations do not accumulate, which can be highly flammable and can pose special health hazards if from thorium-containing electrodes. Tungsten-Thorium Oxide alloys are generally safe to handle during use and almost all normal conditions and environments. **Special precautions must be taken during the grinding or machining of tips of electrodes that contain Thorium Oxide to avoid the generation and subsequent inhalation of dusts from these operations. Any dusts generated during these operations may be considered as "Source Material", as defined by the Nuclear Regulatory Commission, and therefore be subject to the requirements of 10 CFR, Parts 20 and 40.** Routine wet mopping or vacuuming with an explosion-proof vacuum, fitted with a HEPA filter may be considered to reduce accumulation of dusts.

SECTION 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

CHEMICAL	CAS # % w/w	EXPOSURE INFORMATION		
		ACGIH-TLV mg/m ³	OSHA-PEL mg/m ³	NIOSH-REL mg/m ³
Tungsten The exposure limits provided are for "Tungsten and Insoluble Compounds"	7440-33-7 97.3-99.5	TWA = 5 STEL = 10	TWA = 5 (Vacated 1989 PEL) STEL = 10 (Vacated 1989 PEL)	TWA = 5 STEL = 10
Cerium Oxide (CeO ₂)	1306-38-3 1.8-2.2	NE	NE	NE
Lanthanum Oxide (La ₂ O ₃)	1312-81-8 0.8-2.2	NE	NE	NE
Thorium Oxide (ThO ₂)	1314-20-1 0.8-2.2	NE	NE	NE
Zirconium Oxide (ZrO ₂) The exposure limits provided are for "Zirconium Compounds, as Zr" (CAS # 7440-67-7)	1314-23-4 0.15-0.5, 0.7-0.9	TWA = 5, A4 (Not Classifiable as a Human Carcinogen) STEL = 10, A4 (Not Classifiable as a Human Carcinogen)	TWA = 5 STEL = 10 (Vacated 1989 PEL)	TWA = 5 STEL = 10

NE = Not Established.

NOTE: Fumes may be generated during the use of these electrodes. To appropriately assess inhalation hazards, one recommended way to determine the composition and quantity of fumes and gases to which workers are exposed is to take an air sample in the workers breathing zone. See ANSI/AWS F1.1, from the American Welding Society, 550 NW Lejeune Rd., Miami, FL 33126.

SARA SECTION 313 SUPPLIER INFORMATION: These products contain the following chemicals subject to the reporting requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 (per 40 CFR 372). Thorium Oxide

VENTILATION AND ENGINEERING CONTROLS: Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in Section 2 (Composition and Information on Ingredients). Ensure eyewash/safety shower stations are available.

RESPIRATORY PROTECTION: If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the appropriate standards of Canada and its Provinces. It is suggested that NIOSH guidelines for Welding Fumes are followed. For further information, see full SDS for these products.

EYE PROTECTION: Safety glasses. When used during welding, wear safety glasses, goggles or face-shield with filter lens of appropriate shade number (per ANSI Z49.1, "Safety in Welding and Cutting", as necessary).

HAND PROTECTION: Wear gloves that will protect against heat of metal product.

BODY PROTECTION: None needed for normal circumstances of use. Use body protection appropriate for task (i.e., leather apron, and coveralls).

SECTION 9 - PHYSICAL and CHEMICAL PROPERTIES

VAPOR DENSITY : Not applicable.

EVAPORATION RATE: Not applicable.

SPECIFIC GRAVITY (water = 1) : 19.3.

MELTING POINT : 3410°C (6170°F).

SOLUBILITY IN WATER: Insoluble.

VAPOR PRESSURE: Not applicable.

BOILING POINT: 5927°C (10701°F).

pH: Not applicable.

APPEARANCE AND COLOR: These electrodes are hard, brittle, silvery-gray, odorless metal electrodes.

SECTION 10 - STABILITY and REACTIVITY

STABILITY: Stable.

DECOMPOSITION PRODUCTS: Tungsten oxide compounds may be generated.

MATERIALS WITH WHICH PRODUCTS ARE INCOMPATIBLE: Tungsten is not compatible with halogens and strong oxidizers (i.e. sulfuric acid, nitric acid).

HAZARDOUS POLYMERIZATION: Will not occur.

SECTION 11 - TOXICOLOGICAL INFORMATION

Information on toxicological effects: Acute toxicity: SEE FULL SDS

SECTION 12 - ECOLOGICAL INFORMATION

- 12.1 Toxicity :
 Ecology - general : Very toxic to aquatic life.
- 12.2 Persistence and degradability : No additional information available.
- 12.3 Bioaccumulative potential : No additional information available.
- 12.4 Mobility in soil : No additional information available.
- 12.5 Other adverse effects : No additional information available.

SECTION 13 - DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods : Dispose of in accordance with local and national regulations.
- 13.2 Waste disposal recommendations: Dispose of contents/container in accordance with local / regional / national / international regulations.

SECTION 14 - TRANSPORT INFORMATION

- In accordance with DOT / ADR / RID / ADNR / IMDG / ICAO / IATA
- 14.1 UN Number : Not a dangerous good in sense of transport regulations.
- 14.2 UN proper shipping name : Not applicable.

SECTION 15 - REGULATORY INFORMATION

- 15.1 US Federal Regulations : SEE FULL SDS
- 15.2 US State Regulations : SEE FULL SDS

SECTION 16 - OTHER INFORMATION

- Full text of H-phrases : SEE FULL SDS
- NFPA health hazard : 2 - Warning may be harmful if inhaled or adsorbed
- NFPA fire hazard : 0 - Materials that will not burn
- NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water
- HMS III Rating
- Health : 3 - Major Hazard - major injury likely unless prompt action is taken and medical treatment given
- Flammability : 0 - Minimal hazard
- Physical : 0 - Minimal hazard





BEST WELDS®

Tungsten Electrodes

2% Thoriated

Ground & Annealed

Size: 3/32 x 7" (2.4 x 175mm)

Meets: WS A5.12, EWTh-2, ISO 6848 WTh 20

UN2910/RQ/RADIOACTIVE

LOT NO.

10 - pcs

Tungsten Electrodes

WARNING

SDS sheet and warning information
are inside this package.

BEST WELDS

Distributed Exclusively by ORS Nasco
www.orsnasco.com
1-800-675-6577



© 2021 ORS Nasco LLC
MADE IN CHINA