NRC FORM 313 (06-2016) 10 CFR 30, 32, 33, 34 35, 36, 37, 39, and 40

U.S. NUCLEAR REGULATORY COMMISSION

APPLICATION FOR MATERIALS LICENSE

APPROVED BY OMB: NO. 3150-0120 **EXPIRES: 06/30/2019**

Estimated burden per response to comply with this mandatory collection request: 4.3 hours. Submittal of the application is necessary to determine that the applicant is qualified and that adequate procedures exist to protect the public health and safety. Send comments regarding burden estimate to the FOIA, Privacy, and Information Collections Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0120), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

INSTRUCTIONS: SEE THE CURRENT VOLUMES OF THE NUREG-1556 TECHNICAL REPORT SERIES ("CONSOLIDATED GUIDANCE ABOUT MATERIALS LICENSES") FOR DETAILED INSTRUCTIONS FOR COMPLETING THIS FORM: http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1556/. SEND TWO COPIES OF THE COMPLETED APPLICATION TO THE NRC OFFICE SPECIFIED BELOW.

APPLICATION FOR DISTRIBUTION OF EXEMPT PRODUCTS FILE APPLICATIONS WITH:

MATERIALS SAFETY LICENSING BRANCH
DIVISION OF MATERIAL SAFETY, STATE, TRIBAL AND RULEMAKING PROGRAMS
OFFICE OF NUCLEAR MATERIALS SAFETY AND SAFEGUARDS
U.S. NUCLEAR REGULATORY COMMISSION
WASHINGTON, DC 20555-0001

ALL OTHER PERSONS FILE APPLICATIONS AS FOLLOWS:

IF YOU ARE LOCATED IN:

ALABAMA, CONNECTICUT, DELAWARE, DISTRICT OF COLUMBIA, FLORIDA, GEORGIA, KENTUCKY, MAINE, MARYLAND, MASSACHUSETTS, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, PENNSYLVANIA, PUERTO RICO, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, VIRGIN ISLANDS, OR WEST VIRGINIA,

SEND APPLICATIONS TO:

LICENSING ASSISTANCE TEAM
DIVISION OF NUCLEAR MATERIALS SAFETY
U.S. NUCLEAR REGULATORY COMMISSION, REGION I
2100 RENAISSANCE BOULEVARD, SUITE 100
KING OF PRUSSIA, PA 19406-2713

IF YOU ARE LOCATED IN:

ILLINOIS, INDIANA, IOWA, MICHIGAN, MINNESOTA, MISSOURI, OHIO, OR WISCONSIN, SEND APPLICATIONS TO:

MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

ALASKA, ARIZONA, ARKANSAS, CALIFORNIA, COLORADO, HAWAII, IDAHO, KANSAS, LOUISIANA, MISSISSIPPI, MONTANA, NEBRASKA, NEVADA, NEW MEXICO, NORTH DAKOTA, OKLAHOMA, OREGON, PACIFIC TRUST TERRITORIES, SOUTH DAKOTA, TEXAS, UTAH, WASHINGTON, OR WYOMING,

SEND APPLICATIONS TO:

NUCLEAR MATERIALS LICENSING BRANCH
U.S. NUCLEAR REGULATORY COMMISSION, REGION IV
1600 E. LAMAR BOULEVARD
ARLINGTON, TX 76011-4511

PERSONS LOCATED IN AGREEMENT STATES SEND APPLICATIONS TO THE U.S. NUCLEAR REGULATORY COMMISSION ONLY IF THEY WISH TO POSSESS AND USE LICENSED MATERIAL IN STATES SUBJECT TO U.S.NUCLEAR REGULATORY COMMISSION JURISDICTIONS.

1. THIS IS AN APPLICATION FOR *(Check appropriate item)*

- [x] A. NEW LICENSE
- [ ] B. AMENDMENT TO LICENSE NUMBER _____
- [ ] C. RENEWAL OF LICENSE NUMBER _____

2. NAME AND MAILING ADDRESS OF APPLICANT *(Include ZIP code)*

Welding Material Sales, Inc.
PO Box 786
Geneva, Illinois 60134

3. ADDRESS WHERE LICENSED MATERIAL WILL BE USED OR POSSESSED

Welding Material Sales, Inc.
1340 Reed Road
Geneva, Illinois 60134

4. NAME OF PERSON TO BE CONTACTED ABOUT THIS APPLICATION

Brian DePaul

BUSINESS TELEPHONE NUMBER	BUSINESS CELLULAR TELEPHONE NUMBER
6303236421	6309270007

BUSINESS EMAIL ADDRESS

bdepaul@weldingmaterialsales.com

SUBMIT ITEMS 5 THROUGH 11 ON 8-1/2 X 11" PAPER. THE TYPE AND SCOPE OF INFORMATION TO BE PROVIDED IS DESCRIBED IN THE LICENSE APPLICATION GUIDE.

5. RADIOACTIVE MATERIAL

a. Element and mass number; b. chemical and/or physical form; and c. maximum amount which will be possessed at any one time.

6. PURPOSE(S) FOR WHICH LICENSED MATERIAL WILL BE USED.

7. INDIVIDUAL(S) RESPONSIBLE FOR RADIATION SAFETY PROGRAM AND THEIR TRAINING AND EXPERIENCE.

8. TRAINING FOR INDIVIDUALS WORKING IN OR FREQUENTING RESTRICTED AREAS.

9. FACILITIES AND EQUIPMENT.

10. RADIATION SAFETY PROGRAM.

11. WASTE MANAGEMENT.

12. LICENSE FEES (Fees required only for new applications, with few exceptions*) *(See 10 CFR 170 and Section 170.31)*
***Amendments/Renewals that increase the scope of the existing license to a new or higher fee category will require a fee.**

FEE CATEGORY: 11240 AMOUNT ENCLOSED: $ 2100.00

13. CERTIFICATION. *(Must be completed by applicant) THE APPLICANT UNDERSTANDS THAT ALL STATEMENTS AND REPRESENTATIONS MADE IN THIS APPLICATION ARE BINDING UPON THE APPLICANT.*

THE APPLICANT AND ANY OFFICIAL EXECUTING THIS CERTIFICATION ON BEHALF OF THE APPLICANT, NAMED IN ITEM 2, CERTIFY THAT THIS APPLICATION IS PREPARED IN CONFORMITY WITH TITLE 10, CODE OF FEDERAL REGULATIONS, PARTS 30, 32, 33, 34, 35 , 36, 37, 39, AND 40, AND THAT ALL INFORMATION CONTANED HEREIN IS TRUE AND CORRECT TO THE BEST OF THEIR KNOWLEDGE AND BELIEF.
WARNING: 18 U.S.C. SECTION 1001 ACT OF JUNE 25, 1948 62 STAT. 749 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

CERTIFYING OFFICER -- TYPED/PRINTED NAME AND TITLE	SIGNATURE	DATE
BRIAN W. DEPAUL, PRESIDENT	BWDeP	10/17/17

FOR NRC USE ONLY

TYPE OF FEE	FEE LOG	FEE CATEGORY	AMOUNT RECEIVED $	CHECK NUMBER	COMMENTS
APPROVED BY				DATE	

NRC FORM 313 (06-2016)

RECEIVED OCT 19 2017

Welding Material Sales, Inc.
PO Box 786
1340 Reed Road
Geneva, Illinois 60134
888-905-6737 fax 888-733-1512

NRC FORM 313, SECTION 5

Products to be distributed: 2% thoriated tungsten electrodes for use in GTAW (Gas Tungsten Arc Welding). These products contain between 1.80-2.20% ThO_2 (Thorium Oxide). The balance of the product is ≥ 97.80% tungsten (W). These electrodes are round rods and range I length from 3" to 7". Diameters available and distributed are .020", .040", 1/16", 3/32", 1/8", 5/32", and ¼".

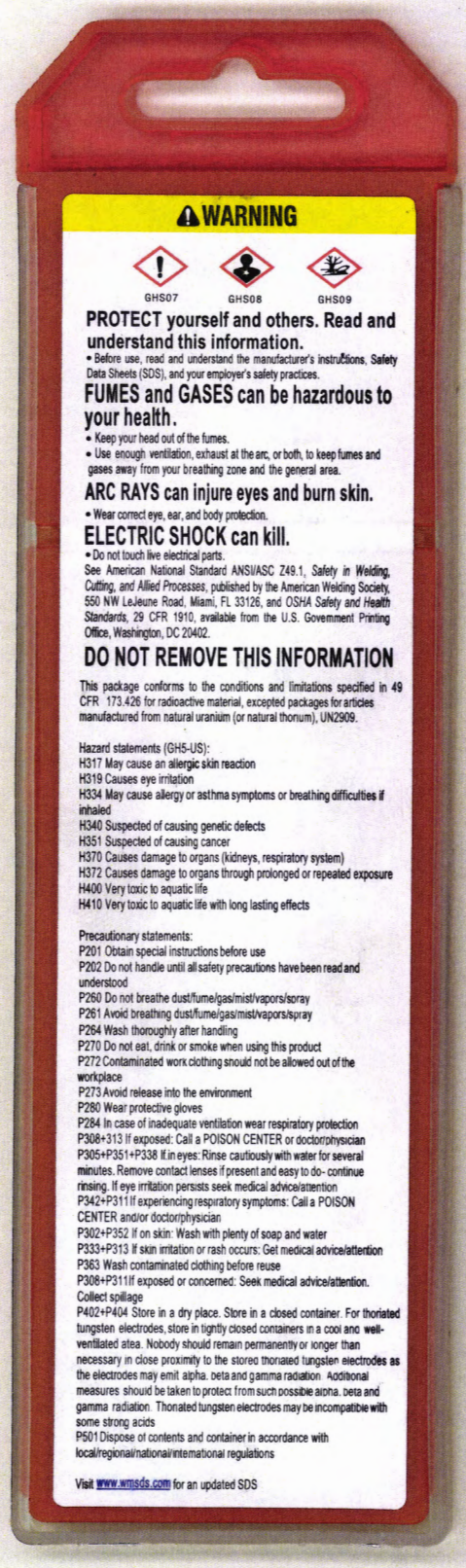
SDS attached

Picture of product as labeled on front and back is attached.

NRC FORM 313, SECTION 6

Purpose for which licensed material will be used: 2% thoriated tungsten electrodes are used in the welding industry, specifically in the GTAW (Gas Tungsten Arc Welding) process, aka TIG welding. The tungsten electrode is used to carry the arc from the power source to or from the work piece so that a welding can be created either with or without the addition of filler metal.


2% Thoriated Tungsten
EWTh-2(WTh 20) ANSI/AWS A5.12 ISO 6848
Ground/Annealed
WELDING MATERIAL SALES
BLUE
DEMON™
WELDING PRODUCTS
TUNGSTEN ELECTRODE
EWTH-2 (WT20) - ANSI/AWS A5.12 (ISO 6848)
Ground & Annealed
P/N: TE2T-116-10T
TYPE: 2% Thoriated
SIZE: 1/16"x7" (1.6mmx175mm)
QTY: 10 pieces
LOT #: WT2016175-170518-9034H
6 52426 03339 3
Warning: This product, when used for welding,cutting, or brazing can produce fumes or gases which contain chemicals known to the state of California to cause birth defects (or other reproductive harm), and in some cases cancer. California Health & Safety Code 25249.5 et seq. More information is available at www.calprop65.com. An MSDS is available at www.wmsds.com or by faxing a request to 888-733-1512.
Made in China



⚠WARNING

GHS07 GHS08 GHS09

PROTECT yourself and others. Read and understand this information.

• Before use, read and understand the manufacturer's instructions, Safety Data Sheets (SDS), and your employer's safety practices.

FUMES and GASES can be hazardous to your health.

• Keep your head out of the fumes.
• Use enough ventilation, exhaust at the arc, or both, to keep fumes and gases away from your breathing zone and the general area.

ARC RAYS can injure eyes and burn skin.

• Wear correct eye, ear, and body protection.

ELECTRIC SHOCK can kill.

• Do not touch live electrical parts.

See American National Standard ANSI/ASC Z49.1, *Safety in Welding, Cutting, and Allied Processes*, published by the American Welding Society, 550 NW LeJeune Road, Miami, FL 33126, and *OSHA Safety and Health Standards*, 29 CFR 1910, available from the U.S. Government Printing Office, Washington, DC 20402.

DO NOT REMOVE THIS INFORMATION

This package conforms to the conditions and limitations specified in 49 CFR 173.426 for radioactive material, excepted packages for articles manufactured from natural uranium (or natural thorium), UN2909.

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
H370 Causes damage to organs (kidneys, respiratory system)
H372 Causes damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects

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/vapors/spray
P261 Avoid breathing dust/fume/gas/mist/vapors/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+313 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

Visit www.wmsds.com for an updated SDS

SAFETY DATA SHEET

Welding Material Sales
SDS# 1201
Date: October 2017

SECTION 1: IDENTIFICATION OF SUBSTANCE / MIXTURE AND OF THE COMPANY

1.1 Product Name: Tungsten Electrodes
Product Identification: EWP, EWTh10, EWTh20, EWLa15, EWLa10, EWLa20, EWCe20, EWZr3,EWZr8, EWG AWS A5.12
Product Specification:

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

1.2.1 Relevant identified uses: For welding consumables and related products.

1.2.2 Uses advised: Reference the [7. Handling and storage]

1.3 Details of the supplier of the safety data sheet:

Supplier: Welding Material Sales
1340 Reed Road
Geneva, IL 60134

Emergency telephone number: 800-424-9300

Email: sales@weldingmaterialsales.com

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the mixture:

This product is placed on the market in solid form.

2.1.1 *Classification in accordance with* GHS-US

STOT RE 1	H315
STOT SE 1	H335
STOT RE 1	H372
Aquatic Acute 1	H410
Aquatic Acute 1	H400

2.2 Label Elements:

GHS-US Labeling

Hazard Pictograms (GHS-US):

Signal Word (GHS-US): Danger

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
H370	Causes damage to organs (kidneys, respiratory system)
H372	Causes damage to organs through prolonged or repeated exposure

H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Precautionary Statements:

P201	Obtain special instructions before use
P202	Do not handle until all safety precaustions have been read and understood
P260	Do not breathe dust/fume/gas/mist/vapours/spray
P261	Avoid breathing 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+313	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

3.1 Substances: No data available

Full text of H-Phrases: See Section 16

3.2 Mixtures: The mixture contains dangerous substances:

Substance Name	Structure	Product Identifier (CAS No.)	% Percent	GHS-US Classification
Tungsten	W	7440-33-7	> 99.95	Not Classified
Thorium Dioxide	ThO2	1314-20-1	1.80 - 2.20	Carc. 1A, H350
Cerium Dioxide	CeO2	1345-13-7	1.80 - 2.20	Not Classified
Lanthanum Dioxide	La2O3	1312-81-8	0.80 - 2.20	Not Classified
Zirconium Oxide	ZrO2	1314-23-4	0.15 - 0.90	Not Classified
LaYZr™ (Lathanum/ Yttrium/Zirconium)	Y2O3/ZrO2	1314-36-9	1.30 - 1.70	Not Classified

SECTION 4: FIRST AID MEASURES

4.1 Description of first aid measures:

First-aid measures after inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and get medical attention.

First-aid measures after skin contact: Flush with water for at least 15 minutes. Seek medical attention if irritation develops.

First-aid measures after eye contact: Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention if discomfort persists.

First-aid measures after ingestion: Do NOT induce vomiting. Get immediate medical attention.

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

Symptoms/injuries after inhalation: Short-term (acute) overexposure to the gases, fumes, and dusts may include irritation of the eyes, lungs, nose, and throat. Some toxic gases associated with welding may cause pulmonary edema, asphyxiation, and death. Acute overexposure may include signs and symptoms such as watery eyes, nose and throat irritation, headache, dizziness, difficulty in breathing, frequent coughing, or chest pain. The presence of chromium/chromate in fume can cause irritation of nasal membranes and skin. The presence of nickel compounds in fume can cause metallic taste, nausea, tightness of chest, fever, and allergic reaction. Excessive inhalation or ingestion of manganese can produce manganese poisoning. Overexposure to manganese compounds may affect the central nervous system, symptoms of which are languor, sleepiness, muscular weakness, emotional disturbances, and spastic gait resembling Parkinsonism. These symptoms can become progressive and permanent if not treated. Excessive inhalation of fumes may cause "Metal Fume Fever" with Flu-like symptoms such as chills, fever, body aches, vomiting, sweating, etc.

Symptoms/injuries after skin contact: Dusts may cause irritation.

Symptoms/injuries after eye contact: Causes eye irritation.

Symptoms/injuries after ingestion: Not an anticipated route of exposure during normal product handling. May be harmful if ingested.

4.3 Indication of any immediate medical attention and special treatment needed: No data available

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 firefighters: 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 labeled 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 disposal information.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions and safe handling: Welding may produce dust, fumes, and gases hazardous to health. Avoid breathing dust, fumes, and gases. Use adequate ventilation. Keep away from sources of ignition. Avoid contact with skin, eyes and clothing. Do not eat, drink, and smoke in work areas. At the end of the work shift, hands and other exposed skin should be washed thoroughly. Follow good housekeeping practices to ensure that powders and dusts from grinding operations do not accumulate; such residue can be highly flammable and may pose special health hazards from thorium containing electrodes.

Tungsten-Thorium Oxide alloys are generally safe to handle during use under all normal conditions and environments. However, 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 and ingestion of dusts from these operations. Any dusts generated during these operations may be considered "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.

7.2 Conditions for safe storage, including and incompatibilities: Store in cool, dry, and well ventilated place. Keep away from incompatible materials. Keep away from heat and open flame.

7.3 Specific end use(s): For welding consumables and related products.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters: Exposure limits were not established for this product.

Tungsten	(CAS No.) 7440-33-7	
USA ACGIH	ACGIH (TWA) (mg/m3)	5mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	5mg/m3
Thorium Dioxide	(CAS No.) 1314-20-1	
USA ACGIH	ACGIH (TWA) (mg/m3)	No data
USA OSHA	OSHA PEL (TWA) (mg/m3)	No data
Lanthanum Dioxide	(CAS No.) 1312-81-8	
USA ACGIH	ACGIH (TWA) (mg/m3)	10mg/m3
USA OSHA	OSHA PEL (Ceiling) (mg/m3)	15mg/m3
Cerium Dioxide	(CAS No.) 1345-13-7	
USA ACGIH	ACGIH (TWA) (mg/m3)	No data
USA OSHA	OSHA PEL (TWA) (mg/m3)	No data
Zirconium Dioxide	(CAS No.) 1314-32-4	
USA ACGIH	ACGIH (TWA) (mg/m3)	5mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	5mg/m3
USA ACGIH	ACGIH STEL (mg/m3)	10mg/m3
LaYZr™ (Lathanum/Yttrium/Zirconium)	(CAS No.) 1314-36-9	
USA ACGIH	ACGIH (TWA) (mg/m3)	1mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	1mg/m3

8.2 Exposure controls: Read and understand the manufacturers instructions and precautionary label on this product. See American Standard Z49.1 Safety in Welding and Cutting, published by the American Welding Society, 550 N.W. Lejenune Rd. Miami, FL and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington, D.C. 20402 for more details on the following topics.

Appropriate engineering controls: Local exhaust and general ventilation must be adequate to meet exposure standards.

Hand protection: Wear welding gloves.

Eye protection: Wear a helmet or face-shield with filter lens of appropriate shade number. See ANSI/ASC Z49.1 Section 4.2. Provide protective screens and flash goggles, if necessary, to shield others.

Skin and body protection: Wear head and body protection, which help to prevent injury from radiation, sparks, flame and electrical shock. See ANSI Z49.1. At minimum this includes welder's gloves and a protective face shield, and may include arm protectors, aprons, hats, shoulder protection, as well as dark substantial clothing. Train the employee not to touch live electrical parts and to insulate him/herself from work and ground. Welders should not wear short sleeve shirts or short pants.

Respiratory protection: If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 Informationon basic physical and chemical properties:

Physical State:	Solid
Appearances:	Rods
Color:	Gray - Silver
Odor:	No data available
Odor Threshold:	No data available
pH:	No data available
Relative evaporation rate (butyl acetate = 1):	No data available
Melting Point:	3400 degrees C
Freezing Point:	No data available
Initial boiling point and boiling range:	No data available
Flash Point:	No data available
Self Ignition Temperature:	No data available
Decomposition Temperature:	No data available
Flammability (solid, gas):	No data available
Vapor Pressure:	No data available
Relative vapor density at 20 degrees C:	No data available
Relative Density:	No data available
Solubility(ies):	No data available
Log Pow:	No data available
Log Kow:	No data available
Viscosity, kinematic:	No data available
Viscosity, dynamic:	No data available
Explosive Properties:	No data available
Oxidizing Properties:	No data available
Explosive limits:	No data available

9.2 Other information: No additional information available.

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No additional information available.

10.2 Chemical stability: The product is stable under normal conditions. When in use it may produce dangerous dusts, fumes, and gases.

10.3 Possibility of hazardous reactions: Will not occur.

10.4 Conditions to avoid: None

10.5 Incompatible materials: None

10.6 Hazardous decomposition products: Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the process, procedure and welding consumables used. Other conditions which also influence the composition and quantity of the fumes and gases to which workers may be exposed include: coating on the metal being welded (i.e. paint, painting, galvanizing), the number of welders, the volume of the work area, the quality and the amount of ventilation, the position of the welders head with respect to the fume plume, as well as the presence of contaminants in the atmosphere (such as chlorinated hydrocarbon vapors from the cleaning and de-greasing activities). When an electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 3. Fume and gas decomposition, and not the ingredients in the electrode, are important. The concentration of a given fume or gas component may decrease or increase by many times the original concentration. Also, new compounds not in the electrodes may form. Decomposition products of normal operation include those originating from the volatilization, reaction or oxidation of the materials shown in Section 3, plus those from the base metal coating, etc., as noted above. Reasonable expected fume constituents of this product would include: Complex oxides of iron, manganese, silicon, chromium, nickel, columbium, molybdenum, copper, carbon dioxide, carbon monoxide, ozone and nitrogen Oxides. Some products will also contain antimony, barium, molybdenum, aluminum, columbium, magnesium, strontium, tungsten, and or zirconium. Fume limit for chromium, nickel and or manganese may be reached before limit of 5 mg/m3 of general welding fumes is reached. Gaseous reaction products may include carbon monoxide and carbon dioxide. Ozone and nitrogen oxides may be formed by the radiation from the arc. Determine the composition and quantity of fumes and gases to which workers are exposed by taking an air sample from inside the welder's helmet if worn or in the worker's breathing zone. Improve ventilation if exposures are not below limits. See ANSI/AWS FI.!, FI.3 and FI.5, available from the American Welding Society, 550 N.W. Lejeune Road, Miami, FL 33126.

SECTION II: TOXICOLOGICAL INFORMATION

11.1 Information on toxicology effects:

Acute Toxicity: Harmful if swallowed

Substance Name	CAS Number	LD50 Oral rat. (mg/kg)	ATE (Oral) (mg/kg)	Comments
Tungsten	7440-33-7			No data
Thorium Dioxide	1314-20-1			No data
Cerium Dioxide	1345-13-7			No data
Lanthanum Dioxide	1312-81-8			No data
Zirconium Oxide	1314-23-4			No data
LaYZr™	1314-36-9			No data

Skin corrosion/irritation: Not classified
Serious eye damage/irritation: Not classified
Respiratory or skin sensitization: Not classified
Germ cell mutagenicity: Not classified
Carcinogenicity: May cause cancer
Reproductive toxicity: Not classified
Specific target organ toxicity (single exposure): May caused drowsiness or dizziness. May cause respiratory irritation
Specific target organ toxicity (repeated exposure): Causes damage to organs through prolonged or repeated exposure
Aspiration hazard: Not classified

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity:
Ecology-general: Very toxic to aquatic life
12.2 Persistance 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.
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:

Tungsten (CAS No.) 7440-33-7
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
Thorium Dioxide (CAS No.) 1314-20-1
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
Cerium Dioxide (CAS No.) 1345-13-7
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
Lanthanum Dioxide (CAS No.) 1312-81-8
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
Zirconium Oxide (CAS No.) 1314-23-4
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)
LaYZr™ (CAS No.) 1314-36-9
Listed on the United States TSCA (Toxic Substances Control Act) Inventory
Listed on SARA Section 313 (Specific toxic chemical listings)

15.2 US State Regulations:

Thorium Dioxide (CAS No.) 1314-20-1				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxcity - Male	No significant risk level (NSRL)
Yes				

Tungsten (CAS No.) 7440-33-7
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List
Thorium Dioxide (CAS No.) 1314-20-1
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List
Cerium Dioxide (CAS No.) 1345-13-7
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List
Lanthanum Dioxide (CAS No.) 1312-81-8
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List
Zirconium Dioxide (CAS No.) 1314-23-4
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List
LaYZr™ (CAS No.) 1314-36-9
U.S. - Massachusetts - Right to Know List
U.S. - Minnesota - Hazardous Substance List
U.S. - New Jersey - Right to Know Hazardous Substances List
U.S. - Pennsylvania - RTK - (Right to Know) List

SAFETY DATA SHEET

Welding Material Sales
SDS# 1201
Date: October 2017

SECTION 16: OTHER INFORMATION

Full text of H-Phrases:

Acute Tox. 2 (Inhalation)	Acute toxicity (inhal.), Category 2
Acute Tox. 3 (Oral)	Acute toxicity (oral), Category 3
Acute Tox. 4 (Oral)	Acute toxicity (oral), Category 4
Aquatic Acute 1	Hazardous to the aquatic environment - Acute Hazard, Category 1
Carc. 1A	Carcinogenicity, Category 1A
Eye Irrit. 2A	Serious eye damage/eye irritation, Category 2A
Skin Irrit. 2A	Sensitisation - Skin corrosion/irrigation, Category 2
Skin Sens.1	Sensitisation - Skin, Category 1
STOT RE 1	Specific target organ toxicity - Repeated exposure, Category 1
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Narcosis
STOT SE 3	Specific target organ toxicity - Single exposure, Category 3, Respiratory tract irritation
H301	Toxic if swallowed
H302	Harmful if swallowed
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H330	Fatal if inhaled
H335	May cause respiratory irritation
H336	May cause drowsiness or dizziness
H350	May cause cancer
H372	Causes damages to organs through prolonged or repeated exposure
H400	Very Toxic to aquatic life

NFPA Health Hazard: 2 - Warning may be harmful if inhaled or absorbed.
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.

HMIS 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

Safety Data Sheet

Welding Material Sales
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We believe that the information contained herein is believed to be true and accurate as of the date of this SDS. All statements or suggestions are made without any warranty, expressed or implied, regarding the accuracy of the information, the hazard connected with the use of this material or the results to be obtained for use thereof. As the condition or methods of use are beyond our control, we do not assume any responsibility and expressly disclaim any liability for any use of this material. It is the user's obligation to determine the conditions of safe use of these products. All chemical products can in fact present unknown risks to health, safety and / or the environment, even in relation to the different operating conditions, and they must therefore be used with care. For this reason we cannot guarantee that the risk described in this form are the only foreseeable risks. The user must therefore satisfy himself as to the particular conditions under which it is intended to be use in. More-over, it must be noted that the user is obliged to comply with all the legislative, administrative and regulatory provisions regarding the product and its use in terms of occupational hygiene and safety, and environmental

protection, apart from the information given in the form, given purely as guidance.