Tungsten Electrodes

SAFETY DATA SHEET

SDS for GHS: Hazcom 2012 (USA) / WHMIS 2015 (Canada) / NMX-R-019-SCFI-2011 (Mexico)

SECTION 1: IDENTIFICATION OF SUBSTANCE / MIXTURE AND COMPANY

1.1 Product Name: Tungsten Electrodes

Product Specification: AWS A5.12M/A5.12:2009 (ISO 6848:2004 MOD)

Product Identification: EWP, EWCe-2, EWLa-1, EWLa-1.5, EWLa-2, EWTh-1, EWTh-2, EWZr-1, EWZr-8, EWG (Cryo-T: EWTh-4)

1.2 Identified Uses: Non-melting electrode for arc welding and cutting processes. Industrial uses for: soldering, brazing, heating elements, emitter, cathode and electrode for lighting industry.

1.3 Supplier: Elderfield & Hall, Inc.
10901 McBride Lane
Knoxville TN 37932

Telephone: 865-671-7682

Email: sales@pro-fusiononline.com

Website: www.pro-fusiononline.com

Revision: **22 March 2016**

SECTION 2: HAZARDS IDENTIFICATION

2.1 Classification of the mixture:

Solid metallic products are generally classified as “articles” and do not constitute hazardous materials in solid form under OSHA Hazard Communications Standard definitions (29 CFR 1910.1200). Only large quantities of thoriated tungsten electrodes may pose a radioactive hazard, and the most serious hazards identified in this Section II relate only to thoriated tungsten electrodes. Thorium dioxide is subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA) and 40 CFR Part 372.

2.2 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

2.3 Label Elements:

Hazard Pictograms (GHS-US):

GHS 07

GHS 08

GHS 09

SIGNAL WORD (GHS-US): **DANGER**

HAZARD STATEMENTS GHS-US):

H317 May cause allergic skin reaction

H319 May cause 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

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 (GHS-US):

P201 Obtain special instructions before use

P202 Do not handle until all safety precautions have been read and understood

P260 Do not breathe dust/fumes/gas/vapors/spray

P261 Avoid breathing dust/fumes/gas/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

P302 If on skin wash with soap and water

P305 If in eyes rinse cautiously with water for several minutes

P308 If exposed call a poison center or doctor

P311 If experiencing respiratory symptoms call a poison center or doctor

P313 If skin irritation or rash occurs get medical attention

P363 Wash contaminated clothing before reuse

P402 Store in a dry place in a closed container

2.4 Physical Hazards / Health Hazards not Otherwise Classified:

PHNOC UNKNOWN

HHNOC UNKNOWN

2.5 Unknown acute toxicity (GHS-US): No data available

SECTION 3: COMPOSITION INFORMATION ON INGREDIENTS

3.1 Mixtures:

Substance Name	Product Identifier (CAS No)	% Percent	GHS-US **classification**
Tungsten W	7440-33-7	> 99.95	Not classified
Thorium Dioxide ThO_2	1314-20-1	1.70 – 4.00	**Carcinogen 1A, H350**
Cerium Dioxide CeO_2	1345-13-7	1.80 - 2.20	Not classified
Lanthanum Dioxide La_2O_3	1312-81-8	0.80 - 2.20	Not classified
Zirconium Oxide ZrO_2	1314-23-4	0.15 - 0.90	Not classified
Yttrium Oxide Y_2O_3	1314-36-9	0.07 - 0.09	Not classified

SECTION 4: FIRST AID MEASURE

4.1 Description of First Aid Measures:

Inhalation: Remove to fresh air and rest in comfortable position. Seek medical attention.

Skin Contact: Flush with water for at least 15 minutes. Seek medical attention if irritation persists.

Eye Contact: Flush with water for at least 15 minutes. Seek medical attention if discomfort persists.

Ingestion: Do NOT induce vomiting. Rinse mouth and seek medical attention.

SECTION 5: FIREFIGHTING MEASURES

5.1 Extinguishing media: Use alcohol resistant foam, water mist, or dry extinguishing powder or carbon dioxide (CO2)

Unsuitable extinguishing media: No information available

5.2 Special Hazards: Fire may produce irritating or poisonous gases

Fire Hazard: Not flammable

Explosion Hazard: Not known

5.3 Special protective gear / precautions for firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA / NIOSH approved full protective gear. Evacuate personnel to safe areas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1 Personal Precautions: Ensure adequate ventilation especially in confined areas and wear respiratory protection. Avoid creating dust and do not breath dust/ fume/gas/spray. Remove all sources of ignition.

6.2 Environmental Precautions: Avoid release into the environment (soil, drains, sewers)

6.3 Method of Containment and Cleanup: Collect mechanically and dispose in labeled containers according to regional requirements.

SECTION 7: HANDLING AND STORAGE

7.1 Precautions for Safe Handling: Keep away from heat/sparks/hot surfaces/static discharge. Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Adopt good practices to prevent accumulation of dust and powders from use or grinding as thorium containing electrodes pose a special health hazard.

7.2 Conditions for Safe Storage: Store in cool, dry and well ventilated space. Keep away from any source of ignition as described above. Store thorium containing material in accordance with local regulations for radioactive substances.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control Parameters:

Tungsten	(CAS No) 7440-33-7	
USA ACGIH	ACGIH (TWA) (mg/m3)	5 mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	5 mg/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)	10 mg/m3
USA OSHA	OSHA PEL (Ceiling) (mg/m3)	15 mg/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 Oxide	(CAS No) 1314-32-4	
USA ACGIH	ACGIH (TWA) (mg/m3)	5 mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	5 mg/m3
USA ACGIH	ACGIH STEL (mg/m3)	10 mg/m3
Yttrium Oxide	(CAS No) 1314-36-9	
USA ACGIH	ACGIH (TWA) (mg/m3)	1 mg/m3
USA OSHA	OSHA PEL (TWA) (mg/m3)	1 mg/m3

8.2 Exposure Controls: ***See American Standard Z49.1 "Safety in Welding and Cutting", published by the American Welding Society, 550 N.W. LeJeune Rd. Miami, FL 33126 and OSHA publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington, D.C. 20402 for details on hand, eye, skin, respiratory and body protection.***

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	- Solid
Color:	- Gray - Silver
Odor:	- Odorless
Odor threshold:	- Not determined
pH:	- Not determined
Relative evaporation rate (butyl acetate = l):	- Not determined
Melting point:	- approx. 3382 C (6120 F)
Freezing point:	- Not determined
Boiling point:	- approx. 5530 C (9986 F)
Flash point:	- Not determined
Self ignition temperature:	- Not determined
Decomposition temperature:	- Not determined
Flammability (solid, gas):	- Not determined
Vapor pressure:	- Not determined
Relative vapor density at 20· C:	- Not determined
Relative density:	- Not determined
Solubility:	- Not determined
Log Pow:	- Not determined
Log Kow:	- Not determined
Viscosity, kinematic:	- Not determined
Viscosity, dynamic:	- Not determined
Explosive properties:	- Not determined
Oxidizing properties:	- Not determined
Explosive limits:	- Not an explosive

SECTION 10: STABILITY AND REACTIVITY

10.1 Reactivity: No additional information available

10.2 Chemical Stability: This material is stable under normal conditions

10.3 Possibility of Hazardous Reactions: Builds hydrogen with acids. Danger of forming hydrogen-air mixtures.

10.4 Conditions to Avoid: In the presence of oxygen and elevated temperatures (>600 C / 1112 F) oxidation starting at 977 C / 1790 F sublimation of tungsten oxide (WO3, CAS No. 1314-35-8) and release of thorium dioxide (ThO2, CAS No. 1314-20-1). Avoid dust generation and accumulation.

10.5 Incompatible Materials In general, the contact of strong acids and / or alkalis with halogens, oxidizing agents or with earth metals can cause strong reactions. This creates a danger of highly energetic reactions and formation of flammable/toxic gases.

10.6 Welding fumes and gases can create complex interactions. When an electrode is consumed, the fume and gas generated can be volatile and toxic. Also, the oxidation of the product (oxides) can be evaporated (tungsten oxide) or released as thoria (ThO2 CAS No. 1314-20-1).

SECTION 11: TOXILOGICAL INFORMATION

11.1 information on toxilogical effects: Harmful if swallowed

Substance name	CAS number	LD5O oral rat (mg/kg	ATE (oral) (mg/kg)	Comments
Cerium Dioxide	1345-13-7			No data
Lanthanum Dioxide	1312-81-8			No data
Zirconium Oxide	1314-23-4			No data
Yttrium Oxide	1314-36-9			No data

HAZARDOUS

Chemical Name	Ora	Dermal LD50	Inhalation LC50
Tungsten(CAS #: 7440-33-7)	> 2000 mg/kg (rat)	> 2000 mg/kg (rat)	> 5.4 mg/L (rat) 4h

Thorium dioxide (CAS# 1314-20-1: parenteral LD50= 80mg/kg (mammal) Intratracheal LD50= > 1140 mg/kg (rat)

Skin Irritation	- Not classified
Eye Irritation	- Not classified
Respiratory Irritation	- Not classified
Skin sensitization	- Not classified
Carcinogenicity	- May cause cancer
Reproductive toxicity	- Not classified

SECTION 12: ECOLOGICAL INFORMATION

12.1 Toxicity Very toxic to aquatic life

Chemical Name	Algae/aquatic plants EC50	Fish	Crustacea EC50
Tungsten(CAS #: 7440-33-7)	> 17.7 mg/l 72 h Pseudokirchneriella subcapitata	> 181 mg/l 96 h Danio rerio,	> 163 mg/l 48 h Daphnia magna

12.2 Persistence and Degradability: No additional information available

12.3 Bio-accumulative 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 Relevant regulations thorium (EU): Council Directive 2006/117/EURATOM on the supervision and control of shipments of radioactive waste and spend fuel.
Nuclear Waste Shipment—AtAV (Germany)

SECTION 14: TRANSPORT INFORMATION

(DOT / ADR / RID / ADNR / IMDG / ICAO / IATA)

14.1 UN / ID No. (thorium): UN2909

UN Proper Shipping Name (thorium): RADIO ACTIVE MATERIAL, EXCEPTED PACKAGE - ARTICLES MANUFACTURED FROM NATURAL URANIUM OR DEPLETED URANIUM OR NATURAL THORIUM.

Hazard Class (thorium): 7

SECTION 15: REGULATORY INFORMATION

15.1 U S Federal Regulations

Tungsten	(CAS No.) 7440-33-7	TSCA Inventory (listed)	SARA Section 313
Thorium Dioxide	(CAS No.) 1314-20-1	TSCA Inventory (listed)	SARA Section 313
Cerium Dioxide	(CAS No.) 1345-13-7	TSCA Inventory (listed)	SARA Section 313
Lanthanum Dioxide	(CAS No.) 1312-81-8	TSCA Inventory (listed)	SARA Section 313
Zirconium Dioxide	(CAS No.) 1314-23-4	TSCA Inventory (listed)	SARA Section 313
Yttrium Oxide	(CAS No.) 1314-36-9	TSCA Inventory (listed)	SARA Section 313

15.2 US State Regulations

Tungsten	(CAS No.) 7440-33-7	MA MN NJ PA	Right to Know List Hazardous Sub. List Right to Know List Right to Know List
Thorium Dioxide	(CAS No.) 1314-20-1	CA MA MN NJ PA	Prop 65 Carcinogen Right to Know List Hazardous Sub. List Right to Know List Right to Know List
Cerium Dioxide	(CAS No.) 1345-13-7	MA MN NJ PA	Right to Know List Hazardous Sub. List Right to Know List Right to Know List
Lanthanum Dioxide	(CAS No.) 1312-81-8	MA MN NJ PA	Right to Know List Hazardous Sub. List Right to Know List Right to Know List
Zirconium Dioxide	(CAS No.) 1314-23-4	MA MN NJ PA	Right to Know List Hazardous Sub. List Right to Know List Right to Know List
Yttrium Oxide	(CAS No.) 1314-36-9	MA	Right to Know List

		MN NJ PA	Hazardous Sub. List Right to Know List Right to Know List

SECTION 16: OTHER INFORMATION

16.1 NFPA

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 not reactive with water.

16.2 HMIS 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

DISCLAIMER: ***The information provided in this Safety Data Sheet is correct to the best of our knowledge at the date of its publication.***

The information is provided as guidance and is not considered a warranty or quality specification. It is the user's obligation to determine the conditions of safe use of these products.

EMERGENCY CONTACT: ELDERFIELD & HALL (800) 747-9353

Prepared by: D. Prach