SECTION 1.	PRODUCT IDENTIFICATION
Product Trade Name:	Tungsten Electrodes
Product Identifier:	EWP, EWTh-2, EWLa-1.5, EWLa-2, EWCe-2, EWZr-8, EWG AWS A5.12
Product Use:	For welding consumables and related products.
Email Address:	info@arc-zone.com
Web Address:	www.arc-zone.com
USA Address:	2091 Las Palmas Drive Ste. F
Telephone:	Worldwide: 1.760.931.1500 Toll Free: 1.800.944.2243
Preparation Date:	24 June 2019

SECTION 2.	HAZARDS IDENTIFICATIONS
EYE:	If irritation occurs due to welding fumes or from dust when grinding tungsten, flush with water. If irritation persists seek medical attention.
SKIN:	Adverse reaction from contact with these electrodes is not likely. Prompt medical attention should be obtained for burns or irritation resulting from welding process.
INGESTION:	Consult physician.
INHALATION:	Move the exposed individual from the welding area to fresh air. Aid breathing and seek medical attention if necessary.

SECTION 3. COMPOSITION, INFORMATION ON INGREDIENTS

HAZARDOUS INGREDIENTS: Formula:

Designation	Chemical Composition		
AWS A5.12	**Oxide Additive %**	**Tungsten %**	**Tip Color**
EWTh-2	ThO_2:1.70-2.20	≥97.30	Red
EWP	---	≥99.95	Green
EWLa 1.5	LaO_2 : 1.30-2.20	≥97.80	Gold
EWCe-2	CeO_2 : 1.80-2.20	≥97.30	Orange / Gray
EWLa-1	La_2O_3 : 0.8-1.20	≥98.30	Black
EWLa-2	La_2O_3 : 1.8-2.20	≥97.30	Blue
EWZr-1	ZrO_2 : .0.15-0.50	≥99.10	Brown
EWG	Non-Radioactive Additives (chemical composition is a trade secret)	≥96.00	Sky Blue™

SECTION 4.	FIRST AID MEASURES
INHALATION:	Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen and get medical attention.
INGESTION:	Do NOT induce vomiting. Get immediate medical attention.
EYE CONTACT:	Immediately flush eyes with water and continue washing for at least 15 minutes. Obtain medical attention if discomfort persists.
SKIN CONTACT:	Flush with water for at least 15 minutes. Seek medical attention if irritation develops or persists.

SECTION 5.	FIRE FIGHTING MEASURES
CONDITIONS OF FLAMMABILITY:	No Data
MEANS OF EXTINCTION:	Use extinguishing media appropriate for surrounding fire.
SPECIAL FIRE FIGHTING PROCEDURES:	In the event of fire, wear self-contained breathing apparatus and full protective gear.
UNUSUAL FIRE AND	Fire may produce irritating or poisonous gases.

EXPLOSION HAZARDS:	
FLASH POINT / DETERMINATION:	No Data
SECTION 6.	**ACCIDENTAL RELEASE MEASURES**
LEAK / SPILL RESPONSE:	Avoid release into the environment. Avoid dispersal of spilled material and contact with soil, ground and surface water drains and sewers. Take up mechanically. Collect the material in labeled containers and dispose of according to local and regional authority requirements.
SPECIAL INSTRUCTIONS:	Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.
SECTION 7.	**HANDLING AND STORAGE**
HANDLING PROCEDURES / EQUIPMENT:	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. End the end of the work shift, hands, 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.
STORAGE REQUIREMENTS:	Store in cool, dry and well-ventilated place. Keep away from incompatible materials. Keep away from heat and open flame.
SECTION 8.	**EXPOSURE CONTROLS, PERSONAL PROTECTION**
EYE PROTECTION:	Wear 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 PROTECTION:	Wear head and body protection, which help to prevent injury from radiation, sparks, flame and electrical shock. See ANSI Z49.1. At a 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.
ENGINEERING CONTROLS:	No Data
EXPOSURE GUIDELINE LEVELS:	Exposure limits were not established for this product
SECTION 9.	**PHYSICAL AND CHEMICAL PROPERTIES**
PHYSICAL STATE:	Solid
ODOR AND APPEARANCE:	No Odor / Gray- Silver Rods
ODOR THRESHOLD:	No Data
SPECIFIC GRAVITY (H2O=1):	No Data
VAPOUR PRESSURE (mm HG):	No Data
VAPOUR DENSITY (AIR=1):	No Data
EVAPORATION RATE (EE=1):	No Data
BOILING POINT (°C):	No Data
MELTING POINT (°C):	3400°C
Ph:	No Data
COEFFICIENT OF WATER/OIL DISTRIBUTION:	No Data
DENSITY:	No Data
SOLUBILITY IN WATER:	No Data
% VOLATILE BY	No Data

VOLUME:	
SECTION 10.	**STABILITY AND REACTIVITY**
STABILITY:	The product is stable under normal conditions. When using it may produce dangerous dusts, fumes and gases.
CONDITIONS TO AVOID:	None
MATERIALS TO AVOID (INCOMPATIBILITIES):	None
CONDITIONS OF REACTIVITY:	No additional information available.
HAZARDOUS DECOMPOSITION BYPRODUCTS:	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 degreasing 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 Fl.!, Fl.3 and Fl.5, available from the American Welding Society, 550 N.W. Lejeune Road, Miami, FL 3312
SECTION 11.	**TOXICOLOGICAL INFORMATION**
TOXICOLOGICAL DATA:	There is no danger of poisoning or infection in case of mechanical injuries with the electrodes. Damages caused by welding are unknown.
SECTION 12.	**ECOLOGICAL INFORMATION**
IMPORTANT ENVIRONMENTAL CHARACTERISTICS:	No information on degradability, soil mobility, and/or bioaccumulative potential.
AQUATIC TOXICITY:	Very toxic to aquatic life
SECTION 13.	**DISPOSAL CONSIDERATIONS**
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**
Not special requirements.	
SECTION 15.	**REGULATORY INFORMATION**
Hazardous ingredients:	Hazardous ingredients:
% by Weight:	% by Weight:
ACGIH TLV:	ACGIH TLV:
Cas Numbers:	Cas Numbers:
Tungsten	Tungsten
98%	98%
5MG/M3	5MG/M3
SECTION 16.	**OTHER INFORMATION**
N/E	Not Established
N/Av	Not Available
N/Ap	Not Applicable

IARC	International Agency for Research on Cancer
ACGIH	American Conference of Governmental Industrial Hygienists
NIOSH	National Institute for Occupational Health and Safety
TLV-TWA	Threshold Limit Values, Time Weighted Average
NAERG	North American Emergency Response Guidebook
WHMIS	Workplace Hazardous Materials Information System

This MSDS format meets ANSI Z400.1-1998, OSHA 1910.1200 and WHMIS requirements. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product.