HOJA DE DATOS DE SEGURIDAD (SDS) #1201

Electrodos de tungsteno

WELDING MATERIAL SALES, INC.
3940 Stern Ave St. Charles IL 60174
630-232-6421 - sales@weldingmaterialsales.com

NÚMEROS DE TELÉFONO DE EMERGENCIA: 630-232-6421
CHEMTEC: 800-424-9300

SECCIÓN I - IDENTIFICACIÓN DE LA SUSTANCIA O MEZCLA

Identificador de producto GHS: Electrodos de tungsteno para soldadura

Designation		Impurezas de composición química ≤0.1%		Color de la punta
AWS A5.12	ISO 6848	Aditivo de óxido, %	Tungsteno, %	
EWP	WP	------	Balance	Verde
EWLa-1.5	WL15	LaO_2: 1.30-1.70	Balance	Oro
EWCe-2	WC20	CeO_2: 1.80-2.20	Balance	Gris
EWLa-1	WL10	La_2O_3: 0.80-1.20	Balance	Negro
EWLa-2	WL20	La_2O_3: 1.80-2.20	Balance	Azul
EWZr-1	WZ3	ZrO_2: 0.15-0.50	Balance	Marrón
EWG		La_2O_3, CeO_2, Y_2O_3, ZrO_2: 1.80-2.20	Balance	Rosa
EWG		1.80-2.20% Mezcla patentada de uno o más de los siguientes óxidos: CeO_2, LA_2O_3, ThO_2, ZrO_2&Y_2O_3	Balance	Ligero Azul

Otros medios de identificación: Tungsteno; Elemento

Uso recomendado del químico y restricciones de uso: Soldadura; Operaciones metalúrgicas

Especificación: AWS A5.12

Fecha de preparación: Revisado en junio de 2020.

SECCIÓN II - INGREDIENTES PELIGROSOS

Declaración de peligro general: Los productos metálicos sólidos generalmente se clasifican como "artículos" y no constituyen materiales peligrosos en forma sólida según las definiciones de la Norma de comunicación de peligros de OSHA (29 CFR 1910.1200). Cualquier artículo fabricado a partir de estos productos sólidos generalmente se clasificaría como no peligroso, pero algunos elementos peligrosos contenidos en estos productos pueden emitirse durante el esmerilado antes de la soldadura. Los productos en estado sólido no presentan riesgo de incendio o explosión. La Sección X contiene información relacionada con los humos y gases producidos por el uso normal de este producto durante la soldadura. Entre los electrodos, sólo grandes cantidades de electrodos de tungsteno toriado pueden representar un peligro radiactivo, y los peligros más graves identificados en esta Sección II se relacionan únicamente con los electrodos de tungsteno toriado. El dióxido de torio está sujeto a los requisitos de informes de la Sección 313 del Título III de la Ley de Reautorización y Enmiendas del Superfund de 1986 (SARA) y 40 CFR Parte 372. La siguiente información de clasificación es para los elementos peligrosos que pueden liberarse durante el proceso.

Clasificación SGA

Daño ocular grave e irritación	Tóxico para la reproducción – Categoría IB
Sensibilizador respiratorio	Toxicidad específica en determinados órganos – Exposición única – Categoría 1 (riñones, sistema respiratorio)
Sensibilizador de la piel	Toxicidad específica en determinados órganos – Exposición repetida – Categoría 1 (sistema respiratorio, piel)
Mutagenicidad de células germinales	Peligroso para el medio ambiente acuático – Peligro agudo – Categoría 1
Carcinogenicidad – Categoría 2	Peligroso para el medio ambiente acuático – Peligro crónico – Categoría 1

ELEMENTOS DE LA ETIQUETA
GHS Símbolo(s)

Palabra clave
Advertencia

Declaraciones de peligro
Causa irritación en los ojos
Puede provocar síntomas de alergia o asma o dificultades respiratorias si se inhala.
Puede provocar una reacción alérgica en la piel
Se sospecha que causa defectos genéticos.
Se sospecha que causa cáncer
Provoca daño a los órganos (riñones, sistema respiratorio)
Provoca daños en los órganos tras exposición prolongada o repetida (sistema respiratorio) Muy tóxico para la vida acuática
Muy tóxico para los organismos acuáticos, con efectos nocivos duraderos

Consejos de prudencia
Prevención

No respirar el polvo, el humo, el gas, la niebla, los vapores, rociar
En caso de ventilación inadecuada, use protección respiratoria. No se debe permitir que la ropa de trabajo contaminada salga del lugar de trabajo. Lávese minuciosamente después de la manipulación.
Use guantes protectores
Obtenga instrucciones especiales antes de su uso.
No lo manipule hasta que se hayan leído y comprendido todas las precauciones de seguridad. Utilice el equipo de protección personal según sea necesario.
No coma, beba ni fume mientras utiliza este producto.
Evitar su liberación al medio ambiente

Respuesta
SI está expuesto o preocupado: busque atención médica.
EN CASO DE INHALACIÓN: Si respira con dificultad, lleve a la persona afectada al aire libre y manténgala en reposo.
en una posición cómoda para respirar.
EN CASO DE CONTACTO CON LOS OJOS: Enjuague cuidadosamente con agua durante varios minutos. Quitarse los lentes de contacto si están presentes y
fácil hacerlo. Continúe enjuagando. Si la irritación ocular persiste busque atención médica.
Si experimenta síntomas respiratorios: Llame a un CENTRO DE TOXICOLOGÍA y al médico.
EN CASO DE CONTACTO CON LA PIEL: Lavar con abundante agua y jabón. Si se produce irritación o sarpullido en la piel, busque atención médica.
Yo atencion. Lave la ropa contaminada antes de volver a usarla.
En caso de exposición o preocupación: busque atención médica. Recoger los derrames.
Almacenamiento:
Almacenar en contenedores cerrados en un lugar seguro y seco.

Para los electrodos de tungsteno toriado, guárdelos en recipientes herméticamente cerrados en un área fresca y bien ventilada. Nadie debe permanecer permanentemente o más tiempo del necesario cerca del toriado almacenado.

electrodos de tungsteno, ya que los electrodos pueden emitir radiación beta y gamma. Se deben tomar medidas adicionales para protegerse de posibles radiaciones beta y gamma. Los electrodos de tungsteno toriado pueden ser incompatibles con algunos ácidos fuertes.

Desecho
Deseche el contenido del contenedor de acuerdo con las regulaciones locales, regionales, nacionales e internacionales.

SECCI N III – COMPOSICI N E INFORMACI N DE LOS INGREDIENTES

Ver SECCIÓN I para la composición química de las mezclas.
Administración de Salud y Seguridad Ocupacional 29 CFR 1910.1000 Límite de exposición permisible (PEL). Valor límite umbral de la Conferencia Americana de Higienistas Industriales Gubernamentales (ACGIH)
(TLV[R]).

INGREDIENTE	No CAS.	OHSA PEL	ACGIH TWA	ACGIH STEL
Tungsteno (W)	7440-33-7	-	5 mg/m^3	10 mg/m^3
Dióxido de torio	1314-20-1	-	-	-
Dióxido de cerio	1345-13-7	-	-	-
Dióxido de lantano	1312-81-8	-	-	-
Óxido de circonio	1314-23-4	5 mg/m^3	5 mg/m^3	10 mg/m^3
Óxido de itrio	1314-36-9	1 mg/m^3	1 mg/m^3	-

Valor límite umbral: El límite general recomendado por la ACGIH para NOC de humos de soldadura (no clasificados de otra manera) es 5 mg/m3. El prefacio de ACGIH-1985 establece: "El TLC-TWA debe usarse como guía en el control de riesgos para la salud y no debe usarse como líneas muy finas entre concentraciones seguras y peligrosas". Consulte la sección V para conocer los componentes específicos del humo, que pueden modificar este TLV.

SECCI N IV – PRIMEROS AU ILIOS

No deberían ser necesarias medidas de primeros auxilios para los electrodos no utilizados. Durante las operaciones de soldadura se deben prestar los siguientes primeros auxilios:

Inhalaci n: Si tiene dificultad par respirar, lleve a la persona afectada a un área con aire fresco y pídale que respire profundamente el aire fresco.

Quemaduras en la piel: Sumerja el área afectada en agua fría hasta que cese la sensación de ardor y refiera a atención médica inmediata.

Efectos oculares como arcos oculares y polvos: Lave inmediatamente con agua esterilizada. Después del enjuague inicial, quítese los lentes de contacto y continúe enjuagando durante al menos 15 minutos. Mantenga los ojos bien abiertos mientras se enjuaga. Consulta a un médico. Cubra con un apósito húmedo y consulte a un médico de inmediato si la irritación persiste.

Ingesti n: La ingestión se considera poco probable debido a la forma del producto, pero se deben tomar medidas para evitar la ingestión del polvo resultante del pulido de electrodos de tungsteno toriado. Si

algo es ingerido, no inducir el vómito. Llame a un médico o al centro de control de intoxicaciones de inmediato. Beber abundante agua. Nunca le dé nada por vía oral a una persona inconsciente.

Descargas eléctricas: Si es necesario, reanimar y buscar atención médica inmediata.

SECTION V - FIRE FIGHTING MEASURES

The tungsten electrodes do not present fire or explosion hazards as shipped. However, welding arc and sparks can ignite combustibles. See Z-49.1 referenced in Section VIII. Welding should not be carried out in the presence of flammable materials, vapors, tanks, cisterns and pipes, or other containers that have held flammable substances unless they have been checked and certified to be safe.

SECTION VI - ACCIDENTAL RELEASE MEASURES

No specific actions for electrodes prior to use. Welding in proximity to stored or used halogenated solvents may produce toxic and irritant gases. Prohibit welding in areas where these solvents are used.

SECTION VII - HANDLING AND STORAGE

Work Practices and Hygiene Practices: After the end of the 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 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 if from thorium-containing electrodes.

Tungsten-Thorium Oxide alloys are generally safe to handle during use under almost 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 and Handling Practices: All employees who handle these materials should be trained to handle them safely. Avoid breathing dusts or powders generated during the grinding of electrode tips. Open packages and containers of these products slowly, on a stable surface. Packages and containers of these products must be properly labeled.

SECTION VIII - EXPOSURE CONTROLS / PERSONAL PROTECTION

Read and understand the manufacturer's 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 Road, Miami, Florida 33126 and OSHA Publication 2206 (29 CFR 1910), U.S. Government Printing Office, Washington D.C. 20402 for more details on the following topics.

Ventilation: Use plenty of ventilation and / or local exhaust at the arc to keep fumes and gases below the threshold limit value within the worker's breathing zone and the general work area. Welders should be advised to keep their heads out of the fumes.

Respiratory Protection: Use a respirable fume respirator or air supplied respirator when welding in a confined space or general work area where local exhaust and / or ventilation does not keep exposure below the threshold limit value.

Eye Protection: Wear a helmet or face shield with a filter lens shade number 12-14 or darker. Shield other workers by providing screens and flash goggles.

Protective Clothing: Wear approved head, hand, and body protection, which help prevent injury from radiation, sparks, and electrical shock. See ANSI Z-49.1. Such protective clothing may include, but are not limited to, welder's gloves, protective face shields, arm protectors, aprons, hats, shoulder protection, and dark substantial clothing. Welders should be trained not to allow electrically live parts to contact the skin or wet clothing and gloves. Welders should insulate themselves from the work and ground.

Waste Disposal Method: Discard any product, residue, disposal container, or liner in an environmentally-acceptable manner approved by federal, state and local regulations.

SECTION IX - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Melting Point: Approximately 3400°C	Color: Silver-gray
Boiling Point: Approximately 5900°C	Odor: odorless
Solubility in Water: Insoluble	Vapor. Press: N/A at 25°C
Specific Gravity (H_2O=1): Approximately 19.3	Vapor. Density: N/A
Radioactive Isotope: Th-232	Oxidizing properties: N/A

Other information: Volatile Organic Chemical (VOC) Content – Not available.

SECTION X – STABILITY AND REACTIVITY

There is no stability or reactivity hazards from welding electrodes as supplied. Hazardous decomposition products such as metal oxide fumes and gases (see Section VIII) are produced during grinding and welding. Welding fumes and gases cannot be classified simply. The composition and quantity of these fumes and gases are dependent on the metal being welded, the procedures followed, and the electrodes used.

Workers should be aware that the composition and quantity of fumes and gases to which they may be exposed are influenced by: coatings which may be present on the metal being welded (e.g. paint, plating, galvanizing), the number of welders in operation and volume of the work area, the quality and amount of ventilation, the position of the welder's head with respect to the fume plume, and the presence of contaminants in the atmosphere (e.g. chlorinated hydrocarbon vapors from cleaning and degreasing procedure). When the electrode is consumed, the fumes and gas decomposition products generated are different in percentage and form from the ingredients listed in Section I. The composition of these fumes and gases are the concerning matter, not the composition of the electrode itself.

Decomposition products include those originating from the volatilization, reaction, or oxidation of the ingredients shown in Section II, as well as those from the base metal, coating, and the other factors noted above.

Gaseous reaction products may include carbon monoxide and carbon dioxide.

Ozone and nitrogen oxides may be formed by the radiation from the arc.

One method of determining the composition and quantity of the fumes and gases to which the workers are exposed is to take an air sample from inside the welder's helmet while worn or within the worker's breathing zone. See ANSI/AWS F1.1 publication available from the American Welding Society 550 N.W. LeJeune Road, Miami, Florida 33126.

SECTION XI – TOXICOLOGICAL INFORMATION

Welding fumes emitted during the welding process may contain metal particles and gases, which if inhaled, can potentially produce several different health effects. The exact nature of any likely health effect is dependent on the consumable, material being welded, and welding process, all of which affect fume quantity and composition, as well as the use of adequate ventilation, respirators, or breathing equipment as circumstances require.

Inhalation of the fumes / gases produced during welding may lead to irritation to the nose, throat, and eyes. The range of health effects include respiratory effects with symptoms such as asthma, impaired respiratory and lung function, chronic bronchitis, metal fume fever, pneumoconiosis, emphysema, and acute pulmonary oedema.

Other potential health effects at elevated levels of exposure may include central nervous effects, lung cancer, bone disease, skin, and fertility effects. Which of these health effects is potentially likely is related to the fume composition, and this needs to be consulted with the specific toxicity data below to assess the health risk when using any particular welding process.

Unprotected skin exposed to UV and IR radiation from the welding arc may burn or redden, and UV radiation is potentially a carcinogen. UV radiation can affect the unprotected eye by producing an acute condition known as "arc eye".

Specific effects relevant to major particulate and gaseous fume constituents may be produced from these electrodes (excluding fume from filler material and the components being welded).

Tungsten
Any fume or dust given off by these electrodes will consist mainly of tungsten and tungsten oxides. Exposure to tungsten and its compounds as a dust or fume generally shows low toxicity with no long-term fibrotic effects on the lung. Some lung effects observed with exposure to tungsten carbide dust have been attributed more to cobalt than to tungsten compounds.

Thorium
Thoriated electrodes contain Thorium, which is radioactive. The exact amount of thorium in the fume depends on the grade of thoriated electrode used as well as the welding parameters. Under DC supply, fume levels from the tungsten electrode during welding are negligible, and hence any exposure to

radioactivity is also negligible. However, during electrode grinding and AC welding, fume or dust containing thorium will be emitted and exposure to radioactivity will be higher. Under these circumstances, proper ventilation is required to control any fume / dust emissions. Thorium is a radioactive substance that emits beta radiation externally and alpha radiation internally. These radioactive properties can cause cancer of specific organs.

Cerium
Cerium is relatively non-toxic to humans and no adverse health effects would be expected from exposure to cerium dust or fume.

Lanthanum
Lanthanum is relatively non-toxic to humans and no adverse health effects would be expected from exposure to lanthanum dust or fume.

Zirconium
Zirconium is relatively non-toxic to humans and no adverse health effects would be expected from exposure to zirconium dust or fume.

Ozone and Nitrogen oxides
These gases are formed from interactions of the arc with the surrounding air. Both gases can produce eye, respiratory, and lung irritation and can also produce longer-term lung effects such as decreased lung capacity, chronic bronchitis, and emphysema. Of particular concern with both gases is that exposure to high levels (e.g. due to build-up in confined spaces) can result in acute lung effects such as delayed pulmonary oedema.

SECTION XII - ECOLOGICAL INFORMATION

The welding process produces particulate fumes and gases that may cause long-term adverse effects on the environment if released directly into the atmosphere. Welding some materials with the electrodes covered by this data sheet can produce carbon dioxide gas, which is dangerous to the ozone layer.

SECTION XIII - DISPOSAL CONSIDERATIONS

Packaging and electrode stubs should be disposed of as general waste or recycled.

No special precautions are required for this product, except for the grinding dust and stubs of thoriated electrodes, which may require special disposal, especially if in large quantities.

SECTION XIV - TRANSPORT INFORMATION

The majority of the time, thoriated tungsten electrodes are properly shipped per limited quantity exceptions as described at 49 CFR 173.421. However, large quantity shipments may be fully regulated as Class 7 radioactive materials.

SECTION XV- REGULATORY INFORMATION

WARNING: This product contains a chemical known to the State of California to cause cancer.

Thorium Dioxide is a National Toxicology Program Known Carcinogen.

Australia inventory (AICS): All components are listed or exempted.
China inventory (IECSC): Not determined.
Japan inventory: Not determined.
Korea inventory: All components are listed or exempted.
New Zealand Inventory of Chemicals (NZIoC): Not determined.
Philippines inventory (PICCS): Not determined.
WHMIS (Canada) Class D-2A: Material causing other toxic effects (Very toxic).
Canada:

- Thorium dioxide: Yes.
- Classification: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

CEPA Toxic substances: The following components are listed: Thoriated Tungsten Electrodes
Canadian ARET: None of the components are listed.
Canadian NPRI: The following components are listed: Thorium dioxide
Alberta Designated Substances: None of the components are listed.
Ontario Designated Substances: None of the components are listed.
Quebec Designated Substances: None of the components are listed.

United States
Connecticut Carcinogen Reporting: None of the components are listed.
Connecticut Hazardous Material Survey: None of the components are listed.
Florida substances: None of the components are listed.
Illinois Chemical Safety Act: None of the components are listed.
Illinois Toxic Substances Disclosure to Employee Act: None of the components are listed.
Louisiana Reporting: None of the components are listed.
Louisiana Spill: None of the components are listed.
Massachusetts Spill: None of the components are listed.
Massachusetts Substances: The following components are listed: Tungsten; Thorium oxide
Michigan Critical Material: None of the components are listed.
Minnesota Hazardous Substances: None of the components are listed.
New Jersey Hazardous Substances: The following components are listed: Tungsten; Thorium oxide
New Jersey Spill: None of the components are listed.
New Jersey Toxic Catastrophe Prevention Act: None of the components are listed.
New York Acutely Hazardous Substances: None of the components are listed.
New York Toxic Chemical Release Reporting: None of the components are listed.
Pennsylvania RTK Hazardous Substances: The following components are listed: Tungsten; Thorium oxide
Rhode Island Hazardous Substances: None of the components are listed.
Form R – Reporting requirements and Supplier notification (Thorium dioxide 1314-20-1)

- SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

TSCA 8(a) PAIR: Tungsten
United States inventory (TSCA 8b): All components are listed or exempted.
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: No products were found.

Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Tungsten; Thorium oxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Tungsten: Immediate (acute) health hazard, Delayed (chronic) health hazard; Thorium oxide: Delayed (chronic) health hazard

Health and Safety at Work Act 1974.
The Management of Health and Safety at Work regulations 1992.
L5 Control of substances hazardous to health. The Control of Substances Hazardous to Health Regulations 2002. Approved codes of practice and guidance. (ISBN 0717625346).
Guidance Note EH40 – Occupational Exposure Limits (ISBN 0717621944).
BS EN ISO 10882-1:2001 - health and safety in welding and allied processes - sampling of airborne particles and gases in the operator's breathing zone - part 1: sampling of airborne particles
HSG 37 – An Introduction to Local Exhaust Ventilation. (ISBN 0717610012).
L25 Personal protective equipment at work. Guidance on Regulations. Personal Protective Equipment at Work Regulations 1992. (ISBN 0717604152).
L23 Manual handling. Manual Handling Operations Regulations 1992 (as amended)
BS EN 169:2002 – Personal eye-protection - filters for welding and related techniques - transmittance requirements and recommended use
BS EN 379:2003 – Personal eye-protection - automatic welding filters.
BS EN 12477:2001 Protective Gloves For Welders.
HSG 118 – Electrical Safety in Arc Welding (ISBN 0717607046).

SECTION XVI - OTHER INFORMATION

The customer should provide this Safety Data Sheet to any person involved in the materials use or further distribution. Welding Material Sales requests the users (or distributors) of this product to read this Safety Data Sheet carefully before usage.

The information contained in this Safety Data Sheet relates only to the specific materials designated and may not be valid for such material used in combination with any other material or in any other process.

Welding Material Sales believes that the information contained in this (SDS) Safety Data Sheet is accurate. However, Welding Material Sales does not express or imply any warranty with respect to this information.

The product is supplied on the condition that the user accepts the responsibility to satisfy himself as to the suitability and completeness of such information for his own particular use. Freedom from patent rights must not be assumed.