

Material Safety Data Sheet

Radnor Tungsten 1% Zirconium welding electrode (EWZr-1)

Section 1. Chemical product and company identification

Common name : Tungsten 1% Zirconium welding electrode (EWZr-1)
Trade name : Tungsten 1% Zirconium welding electrode (EWZr-1)
Supplier : Radnor Products, PO Box 6675, Radnor, PA 19087

In case of emergency : (866) 734-3438

Section 2. Hazards identification

Physical state : Solid.
Emergency overview : WARNING
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
BLOOD, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.
Avoid breathing dusts.

Routes of entry : Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects
Eyes : Dust particules or fumes may cause eye irritation.
Skin : No known significant effects or critical hazards.
Inhalation : No known significant effects or critical hazards.
Ingestion : No known significant effects or critical hazards.

Potential chronic health effects : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.

Medical conditions aggravated by over-exposure : Repeated or prolonged exposure to the substance can produce target organ damage.
Prolonged or repeated contact may cause eye irritation.

See toxicological information (section 11)

Section 3. Composition, Information on Ingredients

							CAS number	% by weight
United States								
Tungsten							7440-33-7	99
Zirconium dioxide alloyed							1314-23-4	<1
Canada								
Tungsten							7440-33-7	99
Zirconium dioxide alloyed							1314-23-4	<1
Mexico								
	UN number	IDLH	H	Classification				
				F	R	Special		
Tungsten	Not regulated.	-	1	1	0		7440-33-7	99
Zirconium dioxide alloyed	Not regulated.	50 mg/m ³	0	0	0		1314-23-4	<1

This material is classified hazardous under OSHA regulations in the United States, the WHMIS Controlled Product Regulation in Canada and the NOM-018-STPS-2000 in Mexico.

See Sections 8, 11 and 14 for details.

Section 4. First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear.
- Ingestion** : Do not induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Control Center.

Section 5. Fire fighting measures

- Flammability of the product** : Non-flammable.
- Fire-fighting media and instructions** : Use an extinguishing agent suitable for the surrounding fire.
- Welding arcs and sparks can ignite combustibles. Refer to ANSI Z49.1 "SAFETY IN WELDING AND CUTTING" published by the American Welding Society for fire prevention and protection information during welding.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers.
- Methods for cleaning up** : If emergency personnel are unavailable, vacuum or carefully scoop up spilled material and place in an appropriate container for disposal by incineration. Avoid creating dusty conditions and prevent wind dispersal.

Section 7. Handling and storage

- Handling** : Wash thoroughly after handling.
- Storage** : Keep container tightly closed. Keep container in a cool, well-ventilated area.

Section 8. Exposure controls, personal protection

- Engineering controls** : Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fumes or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit. If dust is generated and ventilation is inadequate, use NIOSH certified respirator that will protect against dust/mist.
- Personal protection**
- Eyes** : Wear helmet or use a face shield with the appropriate filter lens. Provide protective screens and flash goggles, if necessary to shield others. Consult ANSI Z49.1
- Respiratory** : A NIOSH approved respirator should be worn when airborne dust and fume concentrations exceed the applicable limits for Tungsten, Lanthane or other welding materials. A NIOSH approved fume respirator when welding in confines spaces. All appropriate requirements set forth in 29 CFR 1910.134 should be met. Under extreme exposure conditions when airborne concentrations may be above the protection factor of an air-purifying respirator, use a positive-pressure, air-supplied respirator. Appropriate standards for use of respiratory protection (such as 29 CFR



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- Hands** : 1910.134 and Z49.1) should be consulted.
: Leather gloves.
- Skin/Body** : Head, hand and body protection to prevent injury from arc radiation, sparks and electrical shock must be worn. Consult ANSI STD Z49.1
- Personal protection in case of a large spill** : Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear.



Product name United States

Exposure limits

Tungsten

NIOSH REL (United States, 12/2001).

STEL: 10 mg/m³ 15 minute(s). Form: All forms.

TWA: 5 mg/m³ 10 hour(s). Form: All forms.

Zirconium dioxide alloyed

ACGIH TLV (United States, 1/2005).

STEL: 10 mg/m³ 15 minute(s). Form: All forms.

TWA: 5 mg/m³ 8 hour(s). Form: All forms.

NIOSH REL (United States, 12/2001).

STEL: 10 mg/m³ 15 minute(s). Form: All forms

TWA: 5 mg/m³ 10 hour(s). Form: All forms

Welding fumes

OSHA PEL (United States, 8/1997).

TWA: 5 mg/m³ 8 hour(s). Form: All forms

ACGIH TLV (United States).

TWA: 5 mg/m³ 8 hour(s). Form: Particulate.

Canada

None assigned.

Mexico

Tungsten

NOM-010-STPS (Mexico, 9/2000).

CCT: 10 mg/m³ 15 minute(s). Form: All forms.

CPT: 5 mg/m³ 8 hour(s). Form: All forms.

Zirconium dioxide alloyed

NOM-010-STPS (Mexico, 9/2000).

CCT: 10 mg/m³ 15 minute(s). Form: All forms

CPT: 5 mg/m³ 8 hour(s). Form: All forms

Welding fumes

ACGIH TLV (United States).

TWA: 5 mg/m³ 8 hour(s). Form: Particulate.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

- Physical state** : Solid.
- Color** : Gray.
- Odor** : Odorless.
- Melting/freezing point** : <3400°C (6152°F)
- Specific gravity** : 18.2 to 18.97 (Water = 1)
- Dispersibility properties** : Not dispersible in cold water, hot water.
- Solubility** : Insoluble in cold water, hot water.

Section 10. Stability and reactivity

- Stability and reactivity** : The product is stable.
- Incompatibility with various substances** : Incompatible with some strong acids.
- Hazardous polymerization** : Will not occur.

Section 11. Toxicological information

Acute Effects

- Eyes** : Dust particules or fumes may cause eye irritation.
- Skin** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Ingestion** : No known significant effects or critical hazards.
- Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.
- Target organs** : Contains material which causes damage to the following organs: blood, upper respiratory tract, skin, eye, lens or cornea.

Section 12. Ecological information

- Products of degradation** : Some metallic oxides.

Section 13. Disposal considerations

- Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional and local authority requirements.

Consult your local or regional authorities.

Section 14. Transport information

Classification

Mexico/TDG/DOT/IMDG/IATA: Not regulated.

NAERG : Not applicable.

Label

Not applicable.

Additional information

Not applicable.

Section 15. Regulatory information

United States

- HCS Classification** : Target organ effects
- U.S. Federal regulations** : TSCA : All components listed.
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
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Tungsten:
Immediate (acute) health hazard, Delayed (chronic) health hazard

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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.

State regulations : Pennsylvania RTK: Tungsten: (generic environmental hazard)
Massachusetts RTK: Tungsten
New Jersey: Tungsten
California prop. 65: No products were found.

Canada

WHMIS (Canada) : Not controlled under WHMIS (Canada).
DSL : All components listed.

Mexico

Classification : 

International regulations

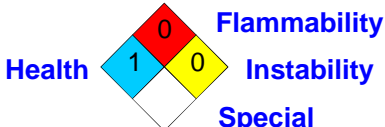
International lists : All components listed are listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

Section 16. Other information

Label requirements : CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, RESPIRATORY TRACT, SKIN, EYE, LENS OR CORNEA.

Hazardous Material Information System (U.S.A.) :

Health	*	1
Fire hazard		0
Reactivity		0
Personal protection		X

National Fire Protection Association (U.S.A.) : 

References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005. - Official Mexican Standards NOM-018-STPS-2000 and NOM-004-SCT2-1994.

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Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.