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Revision Number 2

1. IDENTIFICATION

Product identification

Product identifier	TIG Welding Tungsten Electrode 2% Ceriated
Other means of identification	CW3264
Recommended use	Brazing Alloy, Welding Alloy
Restrictions on use	For industrial use only, These items are only intended for normal welding purposes

Supplier

Corporate Headquarters:
Cronatron, A Lawson Brand
Lawson Products, Inc.
8770 W.Bryn Mawr Ave.- Suite 900
Chicago, IL 60631
1-866-529-7664

Canadian Distribution Center:
Lawson Canada
7315 Rapistan Court
Mississauga, ON L5N 5Z4
(800) 323-5922

24 Hour Emergency Phone Number (888) 426-4851 (Prosar)

Website <https://www.lawsonproducts.com>

2. HAZARD(S) IDENTIFICATION

Hazard Classification This product is normally not considered hazardous as shipped. Avoid inhalation of dust from the product. When this product is used in a welding process the most important hazards are: heat, radiation, electric shock and welding fumes.

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2

Symbol



Signal word WARNING

Hazard statements H319 - Causes serious eye irritation
H315 - Causes skin irritation

Precautionary statements

Prevention	P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P261 - Avoid breathing dust/fume/gas/mist/vapors/spray P264 - Wash face, hands and any exposed skin thoroughly after handling P280 - Wear protective gloves and eye/face protection
Response	
Eyes	P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P337 + P313 - If eye irritation persists: Get medical advice/attention
Skin	P302 + P352 - IF ON SKIN: Wash with plenty of soap and water P362 - Take off contaminated clothing and wash before reuse P333 + P313 - If skin irritation or rash occurs: Get medical advice/attention
Storage	P403 + P233 - Store in a well-ventilated place. Keep container tightly closed
Disposal	P501 -Dispose of contents and container in accordance with local, regional, and federal regulations.
Hazard(s) Not Otherwise Classified (HNOC)	None known.
Physical Hazards Not Otherwise Classified (PHNOC)	None known.
Unknown acute toxicity	None known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Composition Mixture.

Chemical name	CAS-No	Weight %
Tungsten	7440-33-7	60-100
Cerium	7440-45-1	2

4. FIRST-AID MEASURES

Necessary first-aid measures

Inhalation	Remove to fresh air immediately or administer oxygen. Get medical attention immediately.
Ingestion	Seek medical attention immediately.
Skin contact	Flush area with large quantities of water. Seek medical attention if irritation persists. Seek medical attention if irritation occurs.
Eye contact	Flush with plenty of water for at least 15 minutes. Get medical attention.
Most important symptoms (acute)	Electric shock can kill. For electric shock, disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live wire parts or wires. Immediately contact a physician.
Most important symptoms (over-exposure)	Not applicable.
Indication of any immediate medical attention and	Not applicable.

special treatment needed

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Alcohol resistant foam. Water spray. Dry chemical. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Not applicable.
Specific hazards	Welding arcs and sparks can ignite combustible and flammable materials. Hazardous Thermal Decomposition Products: Tungsten oxide. Cerium oxide.
Special protective equipment for fire-fighters	Fire fighters should wear complete protective clothing including self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Use personal protection recommended in Section 8. For waste disposal, see section 13 of the SDS.
Methods and materials for containment and cleaning up	Solid objects may be picked up and placed in a container. Make sure the solid objects are at room temperature before handling. Liquids or pastes should be scooped up and placed into a container. Wear proper protective equipment while handling these materials. Do not discard as refuse. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

7. HANDLING AND STORAGE

Precautions for safe handling	Handle with care to avoid stings or cuts. Wear gloves when handling welding consumables. Avoid exposure to dust and do not ingest. Some individuals may develop an allergic reaction to certain materials. Retain all warning and identity labels.
Conditions for safe storage, including any incompatibilities	Keep container tightly closed in a dry and well-ventilated place. Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions. Ground/bond container and receiving equipment.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Chemical name	OSHA PEL (TWA)	ACGIH OEL (TWA)	NIOSH - TWA
Tungsten	-	3 mg/m ³ TWA	5 mg/m ³ TWA 5 mg/m ³ TWA
Cerium	-	-	-

Appropriate engineering controls

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust. Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area. Keep workplace and protective clothing clean and dry. Train the welder not to touch live electrical parts and to insulate himself from work and ground. Check condition of protective clothing and equipment on a regular basis. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. Processing may form hazardous compounds, refer to section 10.

Individual protection measures, such as personal protective equipment

Eye protection

Welder's helmet or face shield with color absorbing lenses. Shield and filter to provide

protection from harmful UV radiation, infrared and molten metal approved to standard EN379. Filter shade to be a minimum of shade 9.

Skin and body protection

Heat-resistant protective clothing. Wear safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry. Clothing should be selected to suit the level, duration and purpose of the welding activity. Wear appropriate gloves to prevent skin contact. Wear welding gloves.

Respiratory protection

Use an air purifying dust respirator when welding or brazing in a confined space, or when local exhaust or ventilation is not sufficient to keep exposure values within safe limits.

Hygiene measures

Handle in accordance with good industrial hygiene and safety practice.

**Canadian Province Occupational
Exposure Limits**

Chemical name	Alberta OEL	British Columbia OEL	Manitoba OEL	New Brunswick - OEL	Newfoundl and & Labrador - OEL	Nova Scotia - OEL	Ontario OEL	Prince Edward Island - OEL	Quebec OEL	Saskatche wan - OEL
Tungsten	5 mg/m ³ TWA	5 mg/m ³ TWA	3 mg/m ³ TWA	5 mg/m ³ TWA	3 mg/m ³ TWA 3 mg/m ³ TWA	3 mg/m ³ TWA	5 mg/m ³ TWA 5 mg/m ³ TWA	3 mg/m ³ TWA 3 mg/m ³ TWA	5 mg/m ³ TWA EV	5 mg/m ³ TWA 5 mg/m ³ TWA
Cerium	-	-	-	-	-	-	-	-	-	-

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Solid
Color	Metallic, Silver, Gray
Odor	Odorless
Odor threshold	Not applicable
pH	Not applicable
Melting point/range °C	Not available
Melting point/range °F	Not available
Boiling point/range °C	8660 °C
Boiling point/range °F	15620 °F
Flash point °C / °F	Not applicable
Evaporation rate	Not applicable
Flammability (Solid, Gas)	Not available
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapor pressure	No data available
Vapor density	Not applicable
Relative density	19.3

Solubility	Insoluble in water
Partition coefficient (n-octanol/water)	Not applicable
Autoignition temperature °C	Not applicable
Autoignition temperature °F	Not applicable
Decomposition temperature °C	Not available
Decomposition temperature °F	Not available
Viscosity	Not available

10. STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Contact with chemical substances like acids or strong bases could cause generation of gas.
Conditions to avoid	Stable under normal conditions.
Incompatible materials	Incompatible with acids.
Hazardous decomposition products	When this product is used in a welding process, hazardous decomposition products would include those from volatilization, reaction or oxidation of the materials listed in section 3 and those from the base metal and coating. The amount of fumes generated from this product varies with welding parameters and dimensions. Refer to applicable national exposure limits for the fume compounds. Manganese also has a low exposure limit in the USA. Reasonably expected gaseous products would include: carbon oxides. Nitrogen oxides (NOx). Ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quality of fumes and gases produced.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	Dermal. Inhalation.
Symptoms	Prolonged inhalation may be harmful. Welding fumes cannot be classified simply. Their composition and quantity are dependent upon the metal being welded, the process, procedures and electrodes being used. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (group 2B). Overexposure to welding fumes may result in discomfort such as metal fume fever, dizziness, nausea, or dryness or irritation of nose, throat or eyes. May cause sensitization by skin contact.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	Overexposure to welding fumes may affect pulmonary function and eyes. Inhalation of vapors and fumes from thermal decomposition may cause respiratory irritation and metal fume fever with symptoms of fever and chills. Short term overexposure to welding fumes may result in dizziness, nausea, or dryness or irritation of nose, throat, or eyes. Long term exposure may lead to iron deposits in the lungs and is believed by some investigators to affect pulmonary function.

Numerical measures of toxicity

Chemical name	Inhalation LC50:	Dermal LD50:	Oral LD50:
Tungsten	-	-	-
Cerium	-	-	-

ATEmix (dermal)	Not available
ATEmix (oral)	Not available
ATEmix (inhalation-gas)	Not available
ATEmix (inhalation-vapor)	Not available
ATEmix (inhalation-dust/mist)	Not available

Carcinogenicity

Chemical name	ACGIH OEL - Carcinogens	IARC	OSHA Carcinogens	NTP
Tungsten	-	-	-	-
Cerium	-	-	-	-

Canadian Province carcinogenicity limits

Chemical name	Alberta - Carcinogen	British Columbia - Carcinogen	Manitoba - Carcinogen	New Brunswick - Carcinogen	Nova Scotia - Carcinogen	Quebec - Carcinogen
Tungsten	-	-	-	-	-	-
Cerium	-	-	-	-	-	-

12. ECOLOGICAL INFORMATION**Ecotoxicity**

Chemical name	Algae/aquatic plants	Fish LC50
Tungsten	-	-
Cerium	-	-

Persistence and degradability Not readily biodegradable. The welding rods consist of elements that cannot degrade any further in the environment.

Bioaccumulation

Chemical name	CAS-No	Partition coefficient (log Kow)
Tungsten 7440-33-7	7440-33-7	-
Cerium 7440-45-1	7440-45-1	-

Mobility in soil

Welding rods are not soluble in water or soil. Particles formed by working welding rods can be transported in the air.

Other adverse effects

Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment. In massive form, welding rods present no hazards to the aquatic environment. Welding consumables and materials can degrade into the components used to manufacture

the product. Avoid exposure to conditions that could lead to accumulation in soils and groundwater.

13. DISPOSAL CONSIDERATIONS

Disposal information	Consult appropriate federal, state and local regulatory agencies to ascertain proper disposal procedures. Discard container or liner in accordance with federal, state, and local regulations. Residue from welding consumables and processes could degrade and accumulate in soils and groundwater.
Contaminated packaging	Dispose in accordance with local, state and federal regulations.

14. TRANSPORTATION INFORMATION

Shipping Descriptions

DOT

Proper shipping name Not regulated

TDG

Proper shipping name Not regulated

IATA

Proper shipping name Not regulated

IMDG/IMO

Proper shipping name Not regulated

Marine Pollutants

Chemical name	CAS-No	USDOT Marine Pollutant	Canada TDG Marine Pollutant	IMDG Marine Pollutant
Tungsten	7440-33-7	-	-	-
Cerium	7440-45-1	-	-	-

Special Precautions

Multi-modal shipping descriptions are provided for informational purposes and do not consider container size. The presence of a shipping description for a particular mode of transport (sea, air, etc.), does not indicate that the product is packaged suitably for that mode of transport. All packaging must be reviewed for suitability prior to shipment, and compliance with the applicable regulations is the sole responsibility of the person offering the product for transport. People loading and unloading dangerous goods must be trained on all of the risks deriving from the substances and on all actions in case of emergency situations.

15. REGULATORY INFORMATION

State regulations

U.S. state Right-to-Know regulations

Chemical name	CAS-No	Massachusetts - RTK	New Jersey - RTK	Pennsylvania - RTK
Tungsten	7440-33-7	X	X	X
Cerium	7440-45-1	-	X	-

California Prop. 65

Chemical name	CAS-No	California Prop. 65
Tungsten	7440-33-7	-
Cerium	7440-45-1	-

U.S. Federal Regulations

RCRA - D Series Wastes

US EPA SARA 313

Chemical name	CAS-No	CERCLA/SARA Hazardous Substances RQ	SARA 313 - Threshold Values
Tungsten	7440-33-7	-	-
Cerium	7440-45-1	-	-

**US EPA SARA 311/312
hazardous categorization**

Not applicable

Chemical name	DSL/NDL	Inventory - United States - Section 8(b) Inventory (TSCA)	U.S. - TSCA (Toxic Substances Control Act) - Section 12(b) - Export Notification
Tungsten	X	X	-
Cerium	X	X	-

Legend X - Listed

16. OTHER INFORMATION**NFPA**

Health	Not available
Flammability	Not available
Instability	Not available

HMIS

Health	Not available
Flammability	Not available
Physical hazards	Not available

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Revision note

Key to abbreviations

ACGIH (American Conference of Governmental Industrial Hygienists)
ATE (Average Toxicity Estimate)
DSL/NDL (Domestic Substance List/Non-Domestic Substance List)
HMIS (Hazardous Materials Identification System)
IARC (International Agency for Research on Cancer)
IATA (International Air Transport Association)
IMDG/IMO (International Maritime Dangerous Goods/International Maritime Organization)
NFPA (National Fire Protection Association)
NTP (National Toxicology Program)
OEL (Occupational Exposure Level)
OSHA (Occupational Safety and Health Administration of the US Department of Labor)
PEL (Permissible Exposure Limit)
TSCA (Toxic Substance Control Act)
USEPA (United States Environmental Protection Agency)

Disclaimer

The information accumulated herein is believed to be accurate, but is not warranted to be, whether originating with the company or not. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances.

End of Safety Data Sheet