THE HARRIS PRODUCTS GROUP

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Safety Data Sheet

1 IDENTIFICATION

Product identifier
Trade name (As Labelled): Tungsten Electrodes For Welding
Other means of identification: Wolfram
SDS # 0002

Recommended use and restriction on use
Recommended use: Metal Welding – Working Operations
Restrictions on use: No further relevant information available.

Manufacturer/Importer/Supplier/Distributor information
Importer:
NEW ZEALAND
Harris Products Group
47 Edmundson St, Onekawa, Napier
New Zealand 4110
(06) 83405875
Safety Data Sheet Questions: sales@harrisnz.com
Website: http://www.harrisproductsgroup.co.nz

New Zealand National Poisons Centre/Helpline (24 hours) 0800 POISON (0800 764 766)
Fire Service - Ambulance – 111

AUSTRALIA
Harris Products Group
14 Queensland Rd
Darra, QLD, Australia 4076
(07) 33753670
Safety Data Sheet Questions: sales@hgea.com.au
Website: http://www.harrisproductsgroup.com.au

2 HAZARD(S) IDENTIFICATION

GHS classification of the substance/mixture.
Classified according to the Globally Harmonised System of Classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.
Classification of the substance or mixture
These products (the rods) are classified as hazardous according to applicable GHS hazard classification criteria.

EMERGENCY OVERVIEW: These products are hard, brittle, silvery-grey metal electrodes. The chief health hazard associated with these products would be the inhalation of fumes generated by welding or dusts and powdered, formed if grinding operations are performed on the product. Those electrodes that contain Thorium Oxide have a special hazard if dusts or powders are produced and inhaled during use or grinding of tips of the electrodes, as thorium compounds are suspected of being cancer-causing compounds. When exposed to extremely high temperatures, these products will produce irritating oxides of cerium, thorium, tungsten and zirconium. These electrodes present no significant fire hazard; however finely divided metal powder which may be generated during grinding of the tips of electrodes, is highly flammable (especially when exposed to oxidizing compounds at elevated temperatures). In some circumstances, powdered tungsten can be spontaneously flammable. Emergency responders must wear the proper personal protective equipment (and have appropriate fire-extinguishing protection) suitable for the situation to which the are responding.

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GHS Classification(s)

STOT RE– 1	H315
STOT RE– 1	H335
STOT RE– 1	H372
Aquatic Acute– 1	H410
Aquatic Acute– 1	H400

Signal word **Danger**

Label elements

GHS07

GHS08

GHS09

Hazard Statements:
H317 - May cause an allergic skin reaction
H319 – Causes 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 (kidneys, respiratory system)
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:
P201 – Obtain special instruction before use
P202 – Do not handle until all safety precautions have been read and understood
P260 - Do not breathe dust/fume/gas/mist/vapours/spray P261 - Avoid breathing dust/fume/gas/mist/vapours/spray
P261 – Avoid breathing dust/fume/gas/mist/vapours/spray
P264 - Wash thoroughly after handling
P270 - Do not eat, drink or smoke when using this product
P272 – Do not eat, drink or smoke when using this product.
P273 – Avoid release into the environment
P280 – Wear protective gloves
P284 - In case of inadequate ventilation wear respiratory protection
P302+P352 - IF ON SKIN: Wash with plenty of soap and water
P308+P311 – If exposed or concerned: Call a POISON CENTRE - Get medical advice/attention
P333+P313 – if skin irritation or a rash occurs: Get medical advice/attention
P305+P351+P338 – f in eyes: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do – continue rinsing. If eye irritation persists, seek medical advice/attention.
P342+311 - If experiencing respiratory symptoms: Call a POISON CENTER and / or doctor / physician.
P363 - Wash contaminated clothing before reuse
Storage Statement(s):
P402+P404 – Store in a dry place. Store in a closed container. For thoriated tungsten electrodes, store in tightly closed containers in a cool and well-ventilated area. Nobody should remain permanently or longer than necessary in close proximity to the stored thoriated tungsten electrodes as the electrodes may emit alpha, beta and gamma radiation. Additional measures should be taken to protect from such possible alpha, beta and gamma radiation. Thoriated tungsten electrodes may be incompatible with some strong acids.
P405 - Store locked up
Disposal Statement(s):
P501 - Dispose of contents/container in accordance with regulations
Unknown Acute Toxicity Not data available
Other Hazards No additional information available

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3 Composition/information on ingredients

Chemical characterization: Mixtures

Description: Mixture: consisting of the following components.

NOMINAL COMPOSITION WEIGHT % ELECTRODES						
TRADE NAME	**W**	**CeO_2**	La_2O_3	**ThO_2**	**ZrO_2**	**Other Oxides or Elements Total**
Pure Tungsten	99.5					0.5
1% Thoriated Tungsten	98.3			0.8-1.2		0.5
2% Thoriated Tungsten	97.3			1.7-2.2		0.5
1% Lanthanated Tungsten	98.3		0.8-1.2			0.5
1.5% Lanthanated Tungsten	97.8		1.3-1.7			0.5
2% Lanthanated Tungsten	97.3		1.8-2.2			0.5
Ceriated Tungsten	97.3	1.8-2.2				0.5
Zirconiated Tungsten	99.1				0.15-0.40	0.5

Composition of ingredients (continued)		
CAS #	Ingredient	Percentage %
7440-33-7	Tungsten	97.3-99.5 – See previous table
1312-81-8	Lanthanum Oxide (La_2O_3)	See previous table
1306-38-3	Cerium Oxide (CeO_2)	See previous table
1314-20-1	Thorium Oxide (ThO_2)	See previous table
1314-23-4	Zirconium Oxide (ZrO_2)	See previous table
Other components each present in less than 1 percent concentration (0.1% concentration for potential carcinogens, reproductive toxins, respiratory tract sensitizers, and mutagens).		None of the other components contribute significant additional hazards at the concentrations present in these products.

Additional information:

For the listed ingredient(s), the identity and exact percentage(s) are being withheld as a trade secret.

SYMPTOMS OF OVER-EXPOSURE BY ROUTE OF EXPOSURE: The most significant routes of over-exposure to these products is inhalation of fumes generated during welding operations or of dusts generated by grinding operations.

INHALATION: Inhalation is not a significant route of over-exposure to the electrodes. Inhalation of fumes generated from welding operations and to powders generated by grinding of the electrode tips, can cause irritation of the nose, throat, and respiratory system. Symptoms of such over-exposure can include sneezing, coughing, and a sore throat. Inhalation of Tungsten fumes has the potential for causing transient or permanent lung damage. Additionally, short-term over-exposure to welding fumes may result in discomfort, dizziness, nausea, and irritation of the eyes, nose, and throat. Chronic inhalation of large amounts of particulates generated by these products during metal processing operations can result in pneumoconiosis (a disease of the lungs).

CONTACT WITH SKIN or EYES: Contact with skin and eyes can be irritating, especially areas which have been over-exposed to Tungsten powders. Symptoms of skin contact include irritation and redness; prolonged or repeated skin over-exposures to Tungsten powders can lead to dermatitis. Symptoms of eye contact include pain, redness, irritation, and tearing.

SKIN ABSORPTION: Skin absorption is not known to be a significant route of over-exposure for any component of these products.

INGESTION: Ingestion is not anticipated to be a route of occupational exposure for these products.

INJECTION: Ingestion is not anticipated to be a route of occupational exposure for these products.

OTHER HEALTH EFFECTS: Some of these products contain Thorium Oxide, which is a low-level radioactive material. Studies performed by the International Institute of Welding have shown that these electrodes do not present any radiation risks during normal use, storage, welding or disposal of residues of these products. However, during grinding of electrode tips there is a generation of radioactive dusts, which present a hazard through inhalation.

HEALTH EFFECTS OR RISKS FROM EXPOSURE: An Explanation in Lay Terms. Symptoms associated with over-exposure to these products and the fumes generated during welding operations are as follows:

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ACUTE: The chief health hazard associated with these products would be inhalation of fumes generated during welding, or inhalation of powders generated during grinding of electrode tips. Symptoms of acute inhalation of fumes generated during welding include irritation of the nose, throat, and respiratory system.
CHRONIC: Chronic inhalation of large amounts of particulates generated by these products during metal processing operations can result in pneumoconiosis (a disease of the lungs). Prolonged or repeated skin over-exposures to Tungsten powders can lead to dermatitis. Inhalation of Tungsten fumes during welding operations has the potential for causing transient or permanent lung damage. A component of some of these electrodes contain Thorium Oxide, which is a known human carcinogen, and which is a low-level radioactive emitter. If dusts from these electrodes are generated and inhalation there is risk of long-term effects. See Section 11, Toxicological information for further information.
TARGET ORGANS: ACUTE: Skin, eyes, respiratory system. **CHRONIC**: Skin, respiratory system
Composition comments:
The term "Dangerous Components" should be interpreted as a term defined in Hazard Communication standards and does not necessarily imply the existence of a hazard. The product may contain additional nonhazardous ingredients or may form additional compounds under the condition of use. Refer to Sections 2 and 8 for more information.

First-aid measures

EMERGENCY OVERVIEW: These products are hard, brittle, silvery-gray metal electrodes. The chief health hazard associated with these products would be the inhalation of fumes generated by welding or dusts and powdered, formed if grinding operations are performed on the product. Those electrodes that contain Thorium Oxide have a special hazard if dusts or powders are produced and inhaled during use or grinding of tips of the electrodes, as thorium compounds are suspected of being cancer-causing compounds. When exposed to extremely high temperatures, these products will produce irritating oxides of cerium, thorium, tungsten and zirconium. These electrodes present no significant fire hazard; however finely divided metal powder which may be generated during grinding of the tips of electrodes, is highly flammable (especially when exposed to oxidizing compounds at elevated temperatures). In some circumstances, powdered tungsten can be spontaneously flammable. Emergency responders must wear the proper personal protective equipment (and have appropriate fire-extinguishing protection) suitable for the situation to which the are responding.
Description of first aid measures
Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to health professional with victim.
SKIN EXPOSURE: If dusts or powders from these products contaminates the skin, immediately begin decontamination with running water if any adverse effect occurs. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim must seek medical attention if any adverse reaction occurs.
EYE EXPOSURE: If the powder or particulates from these products enter the eyes, open victim's eyes while under gentle running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes.
INHALATION: If powders generated from grinding of the tips of these electrodes are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.
INGESTION: If swallowed call physician immediately! Do not induce vomiting unless directed by medical personnel. Rinse mouth with water if person is conscious. Never give fluids or induce vomiting if person is unconscious, having convulsions, or not breathing.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: Skin disorders may be aggravated by prolonged over-exposures to fumes generated during welding or to powders generated during grinding of tips of the electrodes. Chronic over-exposure to Tungsten powders via inhalation can aggravate lung disorders.
RECOMMENDATIONS TO PHYSICIANS: When personnel have chronic exposure to dusts from electrodes that contain Thorium Oxide, monitoring of personnel for early symptoms and changes such as abnormal leukocytes in the blood smear may be of value. In cases of chronic or acute exposure, the determination of thorium in the urine or the use of whole body radiation counts & breath radon are useful methods of monitoring the exposure dose and excretion rates.

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5 Fire-fighting measures

Fire Extinguishing media:
For Electrode: Not flammable. Use the extinguishing media appropriate for the fire.
Water spray, Halon, Dry Chemical, Carbon Dioxide, Foam or any ABC class.

For Powders of Tungsten: Powders of Tungsten are considered to be a Class D Fires.
Use Soda-Ash, Lime, DRY Sand (Purple K, if available).

Unusual fire and explosion hazards: When Thorium Oxide-containing electrodes are involved in a fire, incipient fire-fighters must wear a respirator approved for radionuclides. When exposed to extremely high temperatures, these products will produce irritating oxides of caesium, thorium, tungsten and zirconium (depending on composition - see Section 2, Composition and Information on Ingredients). These electrodes present no significant fire hazard. Finely-divided tungsten powder, however, is highly flammable (especially when exposed to oxidizing compounds at elevated temperatures).

FLASH POINT: Not flammable.
AUTOIGNITION TEMPERATURE: Not flammable.
SPECIAL FIRE-FIGHTING PROCEDURES: Not applicable.
Additional information:
Read and understand the Work Safe Australia Code of Practice on Welding Processes and "Standard for Fire Prevention During Welding, Cutting and Other Hot Work" before using this product. Section 274 of the Work Health and Safety Act (the WHS Act.)

6 Accidental release measures

Personal precautions, protective equipment and emergency procedures
For non-emergency personnel: Wear appropriate personal protective equipment as specified in Section 8. Ensure adequate ventilation.
For emergency responders: No data available.
Environmental precautions: Avoid release into the environment. Avoid dispersal of spilled material and contact with soil, ground and surface water drains and sewers.
Methods and material for containment and cleaning up:
Take up mechanically. Collect the material in labelled containers and dispose of according to local and regional authority requirements.
Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

Handling:
Precautions for safe handling
Precautions and safe handling: 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. At the end of the work shift, hands and 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

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dusts from these operations. Any dusts generated during these operations may be considered “Source Material” as de-fined 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. See the Australian Standard - AS 1674.1 – 1997 – Reconfirmed 2016. Safety in Welding and Allied Processes Australia.

Conditions for safe storage, including any incompatibilities

Storage and Handling Practices:

Store in cool, dry, and well ventilated place. Keep away from incompatible materials. Keep away from heat and open flame.

Specific end use(s): For welding consumables and related products

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Control parameters

Exposure Guidelines:

Refer to the Safe Environments risk management document – Welding Fume - http://www.safeenvironments.com.au/welding-fume/ The exposure standard refers to the publication by Work Safe Australia “Workplace Exposure Standard for Airborne Contaminants” with the Date of Effect being 22 December 2011. Work Safe Australia note that “exposure standards do not represent a fine dividing line between a healthy and unhealthy work environment. Natural biological variation and the range of individual susceptibilities mean that a small number of people might experience adverse health effects below the exposure standard.

Hazard Classification for Chemical Composition					
CAS #	Ingredient	TWA ppm	TWA mg/m^3	STEL ppm	STEL mg/m^3
7440-33-7	Tungsten The exposure limits provided are for “Tungsten and Insoluble Compounds		5		10
1312-81-8	Lanthanum Oxide (La_2O_3)		Not Established		
1306-38-3	Cerium Oxide (CeO_2)		Not Established		
1314-20-1	Thorium Oxide (ThO_2)		Not Established		
1314-23-4	Zirconium Oxide (ZrO_2) The exposure limits provided are for “Zirconium Compounds, as Zr” (CAS # 7440-67-7)		5		10

Reference: ACGIH Biological Exposure Indices

Refer to Worksafe Australia for standards:

http://www.safeworkaustralia.gov.au/sites/SWA/about/Publications/Documents/639/Workplace_Exposure_Standards_for_Airborne_Contaminants.pdf

Exposure controls

Personal protective equipment:

General protective and hygienic measures:

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Engineering controls and Ventilation

Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Maintain vapour levels below the recommended exposure standard.

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Breathing equipment:

Where an inhalation risk exists, wear a Class P2 (Metal fume) respirator. If using product in a confined area, wear an Air-line respirator.

Protection of hands:

Wear welding gloves for routine industrial use.

Eye protection:

Wear safety glasses with side shields (or goggles). When these products are used for welding, it is recommended that safety glasses, goggles, or face-shield with filter lens of appropriate shade number (per ANSI Z49.1-1988, "Safety in Welding and Cutting") be worn.

Body protection: Protective work clothing

9 Physical and chemical properties

Information on basic physical and chemical properties:

General Information

PRODUCT			
Appearance - Product	Hard, brittle, silvery-grey metal electrodes	**Physical State - Product**	Solid
Odour - Product	Odourless	**Odour Threshold**	Not Applicable
Flammability	Not Available	**Flash Point**	Not Available
pH	Not Applicable	**Auto Igniting**	Not Available
Melting point/range	Not Available	**Solubility water**	Insoluble
Vapour Pressure, mmHg@20^{0}C	Approximately 0		
Vapour Density	Not applicable	**Density at 20^{o}C (68^{o}F)**	Not Applicable
Boiling Point & boiling range	5927^{0}C	**Evaporation Rate**	Not Applicable
Freezing/Melting Point	3410^{0}C	**Specific Gravity (water = 1)**	19.3

10 Stability and reactivity

Stability: Normally stable. Thorium Oxide, which is a component of some of these products, will undergo spontaneous radioactive decay.

Decomposition Products: Exposure to elevated temperatures and oxidizers will lead to the production of tungsten oxide compounds.

NOTE: The composition and quality of welding fumes and gases are dependent upon the metal being welded, the process, the procedure, and the electrodes used. Other conditions that could also influence the composition and quantity of fumes and gases to which workers may be exposed include the following: any

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coatings on metal being welded (e.g. paint, plating, or galvanizing), the number of welders and the volume of the work area, the quality of ventilation, the position of the welder's head with respect to the fume plume, and the presence of other contaminates in the atmosphere. When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 2 (Composition and Information on Ingredients). Fume and gas decomposition products, and not the ingredients in the electrode, are important. Concentration of the given fume or gas component may decrease or increase by many times the original concentration. New compounds in the electrode may form. Decomposition products of normal operations include not only those originating from volatilization, reaction, or oxidation of the product's components but also those from base metals and any coating (as noted previously). The best method to determine the actual composition of generated fumes and gases is to take an air sample from inside the welder's helmet if worn or in breathing zone. For additional information, refer to the American Welding Society Publication, "Fumes and Gases in the Welding Environment".
Materials with which substance is incompatible: Tungsten is not compatible with halogens and strong oxidizers (i.e. sulfuric acid, nitric acid).
Hazardous Polymerization: Will not occur.
Conditions to avoid: Avoid exposure to extreme temperatures and incompatible materials.

11 Toxicological information

Information on toxicological effects:
Toxicity data: Presented below are toxicological data available for the components of these products present in concentration greater than 1%. Toxicological data for human & animal species.

CAS	Name	Oral Toxicity	Dermal Toxicity	Inhalation Toxicity
7440-33-7	Tungsten No Human Data Available	Not Available	LD50 Intraperitoneal 5mgkg RAT	Not Available
1312-81-8	Lanthanum Oxide (La_2O_3) No Human Data Available	LD50 >9968mg/kg RAT	Not Available	Not Available
1306-38-3	Cerium Oxide (CeO_2) No Human Data Available	LD50 >5,000mg/kg RAT	LD50 >2,000 mg/kg RAT	LC50 >5.05 mg/l – 4H RAT
1314-20-1	Thorium Oxide (ThO_2) No Human Data Available		LD50 Intratracheal >1140mg/kg RAT	
1314-23-4	Zirconium Oxide (ZrO_2)	Not Available	Not Available	Not Available

SUSPECTED CANCER AGENT: The components of these products are listed as follows:
THORIUM OXIDE, a component of some of these products, is listed by IARC as a Group 1 compound (Carcinogenic to Humans - Sufficient Evidence of Carcinogenicity
IRRITANCY OF PRODUCT: Dusts or fumes of these products may be irritating to contaminated skin and eyes. Fumes may be irritating to the respiratory system.
SENSITIZATION TO THE PRODUCT: Listed below is information concerning the effects of these products and their components on the human reproductive system.
Mutagenicity: This product is not reported to produce mutagenic effects in humans.
Embryo toxicity: These products are not reported to produce embryo toxic effects in humans.
Teratogenicity: These products are not reported to cause teratogenic effects in humans. Clinical studies on test animals exposed to relatively high doses of Tungsten (a component of these products) during pregnancy indicate teratogenic effects.

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Reproductive Toxicity: These products are not reported to cause reproductive effects in humans. Clinical studies on test animals exposed to relatively high doses of Tungsten (a component of these products) during pregnancy indicate adverse reproductive effects.

RECOMMENDATIONS TO PHYSICIANS: Treat symptoms and eliminate overexposure.
BIOLOGICAL EXPOSURE INDICES: Currently, there are no Biological Exposure Indices (BEIs) associated with components of these products.

12 Ecological information

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.
ENVIRONMENTAL STABILITY: Tungsten will slowly react with water, oxygen, and other compounds to form a wide variety of tungsten compounds.

CAS#	Ingredient	Result LC50, EC50	Species	Exposure
7440-33-7	Tungsten	No Information Found		
1312-81-8	Lanthanum Oxide (La_2O_3)	No Information Found		
1306-38-3	Cerium Oxide (CeO_2)	EC50 >200 mg/l EC50 >1000 mg/l EC50 >1000 mg/l	Fish Daphnia Magna Bacteria	72H 43H 3H
1314-20-1	Thorium Oxide (ThO_2)	No Information Found		
1314-23-4	Zirconium Oxide (ZrO_2)	No Information Found		

EFFECT OF MATERIAL ON PLANTS or ANIMALS: Due to the product size and the product's form, no unusual environmental effects are expected from these products; however, large releases of Tungsten may be harmful to contaminated plants and animals.
EFFECT OF CHEMICAL ON AQUATIC LIFE: Due to the product size and the product's form, these products are not anticipated to cause adverse effects on aquatic life; however, large releases of Tungsten into a body of water may be harmful to aquatic plants and animals.

13 Disposal considerations

Waste treatment methods
Recommendation:
Waste disposal must be in accordance with appropriate Federal, State, and local regulations. These products, if unaltered by use, may be disposed of by treatment at a permitted facility or as advised by your local hazardous waste regulatory authority.
Uncleaned packagings: Empty containers should be taken to an approved waste handling site for recycling or disposal.
Recommendation: Disposal must be made according to official regulations.

14 Transport Information

This product is not classed as hazardous.

UN-Number DOT, ADR, ADN, IMDG, IATA	Not Regulated
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Not Regulated
Transport hazard class(es) DOT, ADR, ADN, IMDG, IATA Class	Not Regulated
Packing group DOT, ADR, IMDG, IATA	Not Regulated
Environmental hazards: Marine pollutant:	No
Special precautions for user	Not applicable.

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Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
UN "Model Regulation":	Not regulated.

15 Regulatory information

Product Name: Tungsten Electrodes For Welding
Safety, health and environmental regulations/legislation specific for the substance or mixture:
Poison Schedule:
Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications:
Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Refer to the Australian Inventory of Chemical Substances – AICS at https://www.nicnas.gov.au/chemicals-on-AICS#main

Poison schedule: Classified as a Schedule 6 (S6) Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP). https://www.legislation.gov.au/Details/F2016L01638

Classifications: Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.
The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

16 Other information

References
Preparation of Safety Data Sheets for Hazardous Chemicals Codie of Practice

Standard for the Uniform Scheduling of Medicines and Poisons

Australian Code for the Transport of Dangerous Goods by Road & Rail.
Modell Work Health and Safety Regulations, Schedule 10: Prohibited carcinogens, restricted carcinogens and restricted hazardous chemicals.

Workplace exposure standards for airborne contaminants, Safe work, Australia

American Conference of Industrial Hygienists (ACGIIH)

Globally Harmonised System of classification and labelling of chemicals.

WELDING (1): Due to the diversity of welding techniques, processes, materials used, nature of the surface being welded and the presence of contaminants, the fumes & gases associated with welding will vary in composition and quantity. When assessing a welding process, the toxic fumes generated may not only be associated with the parent metal, filler wire or electrode. The welding/cutting arc may generate nitrogen oxides, carbon monoxide & other gases, whilst UV radiation emitted from some arcs generates ozone. Ozone may irritate mucous membranes and cause pulmonary oedema & haemorrhage. Shielding gases (e.g. carbon dioxide and inert gases i.e. argon and helium) in high concentrations, in confined spaces, may reduce oxygen in the atmosphere to dangerous levels, resulting in possible asphyxiation.

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WELDING (2): In addition to complying with individual exposure standards for specific contaminants, where current manual welding processes are used, the fume concentration inside the welder's helmet should not exceed 5 mg/m^3 (unless otherwise classified) when collected in accordance with Australian Standard AS 3853.1: Fume from welding and allied processes - Guide to methods for the sampling and analysis of particulate matter and AS 3853.2: Fume from welding and allied processes - Guide to methods for the sampling and analysis of gases. Airway irritation and metal fume fever are the most common acute effects from welding fumes. Reported to cause reduced sperm quality in welders.

WELDING (3): Other gases and fumes associated with welding processes include: Inert shielding gases (e.g. argon, carbon dioxide, helium) which may reduce the atmospheric oxygen content in poorly ventilated areas. UV-radiation and Infra-Red radiation may decompose chlorinated degreasing agents to form highly toxic and irritating phosgene gas. This may occur if a metal has been degreased but inadequately dried or when vapours from a nearby degreasing bath enter the welding zone.

WELDING (4): Welding fumes may contain a wide variety of chemical contaminants, including oxides and salts of metals and other compounds which may be generated from electrodes, filler wire, flux materials and from the welded material (e.g. painted surfaces). Welding stainless-steel and its alloys generates nickel and chromium (VI) compounds. Welding fumes are retained in the lungs. Sparingly soluble compounds may be released slowly from the lungs. Welding fume is classified as possibly carcinogenic to humans (IARC Group 2B).

PERSONAL PROTECTIVE EQUIPMENT GUIDELINES:
The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.

Disclaimer:
We urge each end user and recipient of this SDS to study it carefully. If necessary, consult an industrial hygienist or other expert to understand this information and safeguard the environment and protect workers from potential hazards associated with the handling or use of this product.
Harris Products Group cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for use, handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. The information in the sheet was written based on the best knowledge and experience currently available.

WARNING: PRODUCT COMPONENTS PRESENT HEALTH AND SAFETY HAZARDS. READ AND UNDERSTAND THIS SAFETY DATA SHEET (S.D.S.). ALSO, FOLLOW YOUR EMPLOYER'S SAFETY PRACTICES.
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[End of SDS]