



SAFETY DATA SHEET

OSHA HAZCOM STANDARD 29 CFR 1910.1200(G) AND GHS REV 03.

Welder's First Choice

ISSUE DATE 09/18/2019

REVIEWED ON 09/18/2019

SECTION – 1 IDENTIFICATION

Product Identifier

Trade Name: : Bare Aluminium and Aluminium-Alloy Welding Electrodes and Rods

Product Number:

Specification: A5.10

Classification: ER1100, ER4043, ER5183, ER5356, ER5554, ER5556

Bare Aluminium and Aluminium-Alloy Welding Electrodes and Rods

Relevant identified uses of the substance or mixture and uses advised against:

For professional use only. Use according to manufacturer's specification.

Product Description: Bare Aluminium and Aluminium-Alloy Welding Electrodes and Rods

Application of the substance/the mixture : Industry specific application.

Details of the Supplier of the Safety Data Sheet:

Manufacturer/Supplier:

ROYALE WELDWELL PVT LTD

No.02, Uthiramerur Road, Malaipalayam Post, Maduranthagam, Chengelpet, Dist. Tamilnadu-603303 (INDIA)

Telephone:+91-9840441459

2Hazard(s)Identification

Emergency telephone number: +91-9840441459

SECTION – 2 HAZARD(S) IDENTIFICATION

• **Classification of the substance or mixture:**



Skin Sens. 1 **H317** May cause an allergic skin reaction.

Eye Irrit. 2B **H320** Causes eye irritation.

Aquatic Acute 3 **H402** Harmful to aquatic life.

Aquatic Chronic 3 **H412** Harmful to aquatic life with long lasting effects.

• **Label elements:**

Hazard pictograms:



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• **Signal word: Warning**

• **Hazard-determining components of labelling:**

Titanium

• **Hazard statements:**

H320 Causes eye irritation.

H317 May cause an allergic skin reaction. **H402** Harmful to aquatic life.

H412 Harmful to aquatic life with long lasting effects.



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Precautionary statements:

- P261:** Avoid breathing dust/fume/gas/mist/vapours/spray.
- P264:** Wash thoroughly after handling.
- P272:** Contaminated work clothing must not be allowed out of the workplace.
- P273:** Avoid release to the environment.
- P280:** Wear protective gloves/protective clothing/eye protection/face protection.
- P304+P312:** If INHALED: Call a POISON CENTER/doctor if you feel unwell.
- 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.
- P405:** Store locked up.
- P501:** Dispose of contents/container in accordance with local/regional/national/international regulations.

• Unknown acute toxicity:

This value refers to knowledge of known, established toxicological or ecotoxicological values.
 12.3 % of the mixture consists of component(s) of unknown toxicity.
 • Classification system: NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme
 • NFPA ratings (scale 0 - 4)



Health= 1
 Fire = 0
 Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health= 1
 Fire = 0
 Physical Hazard= 0

Hazard(s) not otherwise classified (HNOC): None known

SECTION -3 COMPOSITION/INFORMATION ON INGREDIENTS

- Chemical characterization: Mixtures**
- Description: Mixture of substances listed below with non-hazardous additions.**

Dangerous Components:

CAS: 7429-90-5 RTECS: BD 0330000	Aluminium Flam. Sol.2, H228	71.45%
CAS: 7440-21-3	Silicon Flam. Sol.2, H228; Acute Tox. 4, H302; Eye Irrit. 2B, H320; Combustible Dust	2-12%
CAS: 7440-50-8 RTECS: GL 5325000	Copper Flam. Sol.1, H228; STOT SE 3, H335; Aquatic Acute 3, H402; Aquatic Chronic 4, H413	6-8%
CAS: 7439-95-4 RTECS: OM 2100000	Magnesium Pyr. Sol.1, H250; Water-react. 1, H260	5.5%
CAS: 7439-96-5 RTECS: OO 9275000	Manganese Pyr. Sol.1, H250; Water-react. 1, H260	1%



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CAS: 7440-66-6	Zinc Aquatic Acute1, H400; Aquatic Chronic 1, H410	0.3%
CAS: 7440-32-6 RTECS: XR 1700000	Titanium Skin Irrit.2, H315; SkinSens. 1, H317; Eye Irrit. 2B, H320	0.2%
CAS: 7439-89-6 RTECS: NO 4565500	Iron Flam. Sol.2, H228; Skin Irrit. 2, H315; STOT SE 3, H335; Eye Irrit. 2B, H320; Combustible Dust	0.95%
CAS: 7440-47-3 RTECS: GB 4200000	Chromium	0.35%
CAS: 7440-67-7 RTECS: ZH 7070000	Zirconium Pyr. Sol.1, H250; Water-react. 1, H260	0.25%
CAS: 7440-41-7 RTECS: DS 1750000	Beryllium Acute Tox. 3, H301; Acute Tox. 2, H330; Carc. 1B, H350; STOTRE 1, H372; Skin Irrit. 2, H315; Eye Irrit. 2A, H319; Skin Sens. 1, H317; STOT SE 3, H335	0.0003%

Additional information:

the exact percentages of the ingredients of this mixture are considered to be proprietary and are withheld in accordance with the provisions of paragraph (i) of §1910.1200 of 29 CFR 1910.1200 Trade Secrets.

Note: Certain chemical constituents listed in Section 3 may vary depending upon the Classification of the Carbon Steel Electrodes for Shielded Metal Arc Welding products

SECTION -4 FIRST-AID MEASURES**Description of first aid measures****General information:**

Symptoms of poisoning may occur after exposure to dust, fumes or particulates; seek medical attention if feeling unwell.

· **After inhalation:** Supply fresh air. If required, provide artificial respiration. Consult doctor if symptoms persist. In case of unconsciousness place patient stably in the side position for transportation..

· **After skin contact:** Generally, the product does not irritate the skin. Immediately wash with water and soap and rinse thoroughly. If skin irritation occurs, consult a doctor.

· **After eye contact:** Do NOT rub eyes. Immediately rinse opened eye(s) for at least 15 minutes under running water, lifting upper and lower lids occasionally. If symptoms persist, consult a physician. If easy to do so, remove contact lenses if worn.

· **After swallowing:** Rinse out mouth and then drink plenty of water. Do not induce vomiting without medical advice. If swallowed and symptoms occur, consult a doctor.

Information for doctor

· Most important symptoms and effects, both acute and delayed: No further relevant information available.

· Indication of any immediate medical attention and special treatment needed: No further relevant information available.

SECTION -5 FIRE-FIGHTING MEASURES**Extinguishing media**

· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.

· **For safety reasons unsuitable extinguishing agents:** No further relevant information.

Special hazards arising from the substance or mixture:

Amorphous or crystalline silicon both react exothermically when heated with alkali-metal carbonates attaining incandescence and evolving carbon monoxide.

Material in powder form, capable of creating a dust explosion. Mixture of silicon, aluminium, and lead oxide explodes when heated.



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If incinerated, product will release the following toxic fumes: Oxides of aluminium, chromium, copper, iron, manganese, magnesium, nickel, silicon, beryllium, titanium, zirconium and zinc.

· Advice for firefighters

· Special protective equipment for firefighters:

As in any fire, wear self-contained breathing apparatus pressure-demand (NIOSH approved or equivalent) and full protective gear to prevent contact with skin and eyes.

· Additional information:

These items are not reactive, flammable, or explosive and essentially not hazardous at ambient temperatures. Welding arcs and sparks can ignite combustibles and flammable products. If involved in a fire, these products may generate irritating aluminium fumes and a variety of metal oxides. Emergency responders must wear personal protection equipment suitable for the situation. Use the extinguishing media recommended for the burning materials and fire situation. See ANSI Z49.1 "Safety in Welding and Cutting" and "Safe Practices" Code: SP, published by the American Welding Society

SECTION -6 ACCIDENTAL RELEASE MEASURES

· Personal precautions, protective equipment and emergency procedures:

Ensure adequate ventilation.

Avoid contact with skin, eyes and clothing.

Wear protective equipment. Keep unprotected persons away.

· Environmental precautions: Inform respective authorities in case of seepage into water course or sewage system. Do not allow to enter sewers/surface or ground water.

Methods and material for containment and cleaning up:

Pick up mechanically. Dispose contaminated material as waste according to section 13. Ensure adequate ventilation. Dispose of the collected material according to regulations.

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.

Protective Action Criteria for Chemical:

PAC-1:		
7440-21-3	Silicon	45 mg/m ³
7440-50-8	Copper	3 mg/m ³
7439-95-4	Magnesium	18 mg/m ³
7439-96-5	Manganese	3 mg/m ³
7439-89-6	Iron	3.2 mg/m ³
7440-47-3	Chromium	1.5 mg/m ³
7440-66-6	Zinc	6 mg/m ³
7440-33-7	Zirconium	10 mg/m ³
7440-32-6	Titanium	30 mg/m ³
7440-41-7	Beryllium	0.0023 mg/m ³



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PAC-2:		
7440-21-3	Silicon	100 mg/m ³
7440-50-8	Copper	33 mg/m ³
7439-95-4	Magnesium	200 mg/m ³
7439-96-5	Manganese	5 mg/m ³
7439-89-6	Iron	35 mg/m ³
7440-47-3	Chromium	17 mg/m ³
7440-66-6	Zinc	21 mg/m ³
7440-33-7	Zirconium	83 mg/m ³
7440-32-6	Titanium	330 mg/m ³
7440-41-7	Beryllium	0.025 mg/m ³

PAC-3:		
7440-21-3	Silicon	630 mg/m ³
7440-50-8	Copper	200 mg/m ³
7439-95-4	Magnesium	1,200 mg/m ³
7439-96-5	Manganese	1,800 mg/m ³
7439-89-6	Iron	150 mg/m ³
7440-47-3	Chromium	99 mg/m ³
7440-66-6	Zinc	120 mg/m
7440-33-7	Zirconium	500 mg/m ³
7440-32-6	Titanium	2,000 mg/m ³
7440-41-7	Beryllium	0.1 mg/m ³

SECTION -7 HANDLING AND STORAGE

Precautions for safe handling:

Avoid creating and breathing dust/fume/gas/mist/vapours/spray. Open and handle receptacle with care. Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires: Keep protective respiratory device available.

• **Conditions for safe storage including any incompatibilities:** Store away from strong acids, strong bases, strong oxidizing agents and strong reducing agents.

• **Storage Requirements to be met by storerooms and receptacles:** Store in the original container.

• **Information about storage in one common storage facility:** Not required.

• **Further information about storage conditions:** Keep receptacle tightly sealed.

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



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SECTION -8 EXPOSURE CONTROLS/PERSONAL PROTECTION

· Additional information about design of technical systems: No further data; see section 7.

· **Control parameters:**

All ventilation should be designed in accordance with OSHA standard (29 CFR 1910.94). Use local exhaust at filling zones and where leakage and dust formation is probable. Use mechanical (general) ventilation for storage areas. Use appropriate ventilation as required to keep Exposure Limits in Air below TLV & PEL limits.

· **Components with occupational exposure limits:**

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the other constituents have no known exposure limits

7429-90-5 Aluminium

PEL	Long-term value:15*; 5** mg/m ³ *Total dust; ** Respirable fraction
REL	Long-term value: 10* 5** mg/m ³ as Al*Total dust**Respirable/pyro powd./welding f.
TLV	Long-term value: 1* mg/m ³ as Al; *as respirable fraction

7440-21-3 Silicon

PEL	Long-term value: 15* 5** mg/m ³ *total dust **respirable fraction
REL	Long-term value: 10* 5** mg/m ³ *total dust **respirable fraction
TLV	TLV withdrawn

7440-50-8 Copper

PEL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
REL	Long-term value: 1* 0.1** mg/m ³ as Cu *dusts and mists **fume
TLV	Long-term value:1* 0.2** mg/m ³ *dusts and mists;**fume; as Cu

7439-96-5 Manganese

PEL	Ceiling limit value:5 mg/m ³ as Mn
REL	Short-term value: 3 mg/m ³ Long-term value: 1 mg/m ³ fume,as Mn
TLV	Long-term value: 0.02* 0.1** mg/m ³ as Mn; *respirable **inhalable fraction



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· **Additional information:** The lists that were valid during the creation of this SDS were used as basis.

· **Exposure controls:**

· Personal protective equipment

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed. Immediately remove all soiled and contaminated clothing and wash before reuse. Wash hands before breaks and at the end of work. Store protective clothing separately. Avoid contact with the eyes and skin. Store protective clothing separately.

· **Breathing equipment:**



Suitable respiratory protective device recommended

Use NIOSH approved or equivalent fume respirator or air supplied respirator when welding, brazing, cutting, grinding, or soldering in a confined space or general work area where local exhaust and/or ventilation does not keep exposure below the limits outlined in Section 8. Monitor the air quality inside the welder's helmet, and/or worker's breathing zone to determine if a respirator is required and the type needed.

· **Protection of hands:**



Protective gloves

Material of gloves:

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material cannot be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material:

The exact break-through time has to be determined and observed by the manufacturer of the protective gloves.

· **Eye protection:**



Goggles with face-shield

Wear a helmet or face shield with a filter lens around shade number 14. Adjust if needed by selecting the next lighter or darker shade number. See ANSI/ASC Z49.1 Section 4.2 or publication F2.2. Shield other workers by providing screens and flash goggles.



Protective work clothing

Body protection:

Wear approved head, hand, and body protection, which help to prevent injury from radiation, sparks, and electrical shock. This would include wearing welder's gloves and a protective face shield and may include arm protectors, apron, hats, shoulder protection, as well as dark, non-synthetic, substantial clothing. See ANSI Z49.1. Welders should be trained not to allow electrically live parts to contact the skin or wet clothing and gloves. The welders should insulate themselves from the work and ground and should not touch live electrical parts. Welders should not wear short sleeve shirts or short pants.



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· Limitation and supervision of exposure into the environment:

Keep away from drains, surface and ground waters. Avoid release into the environment.

SECTION -9 PHYSICAL AND CHEMICAL PROPERTIES

· Information on basic physical and chemical properties

General Information

Appearance:

Form:	Solid Wire/Rod
Colour:	Silver/grey wire covered by various coloured fluxes
Odour:	Odourless until used
Odour threshold:	Not determined.
pH-value:	Not applicable.
Change in condition	
Melting point/Melting range:	Not determined.
Boiling point/Boiling range:	Not determined.
Flash point:	None
Flammability (solid, gaseous):	Not determined.
Ignition temperature:	Not applicable
Decomposition temperature:	Not determined.
Auto igniting:	Product is not self-igniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
Vapor pressure:	Not applicable.
Density:	
Relative density:	Not determined.
Vapor density:	Not applicable.
Evaporation rate:	Not applicable.
Solubility in / Miscibility with:	
Water:	Insoluble.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
Solvent content:	
VOC content:	0.00 %
Solids content:	100 %

10 Stability and Reactivity

Other information: No further relevant information available.

SECTION -10 STABILITY AND REACTIVITY

· Reactivity: Stable under normal conditions.

Chemical stability: Stable under normal conditions.

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions: Contact with acids or strong bases may cause generation of gas.

Conditions to avoid: No further relevant information available.

Incompatible materials: Strong acids, strong bases, strong oxidizing agents and strong reducing agents.



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TRADE NAME: BARE ALUMINUM AND ALUMINUM-ALLOY WELDING ELECTRODES AND RODS

Hazardous decomposition products:

Toxic chromium oxide fumes. Welding fumes and gases cannot be classified simply. The composition and quantity of both are dependent upon the metal being welded, the processes and procedures followed, and the welding consumables used. Other conditions that also influence the composition and quantity of fumes and gases to which workers may be exposed include: coatings on the metal being welded (such as paint, plating, or galvanizing), the number of welders in operation and the 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 (such as chlorinated hydrocarbon vapours from cleaning and degreasing procedures). When the electrode is consumed, the fume and gas decomposition products generated are different in percent and form from the ingredients listed in Section 8. 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. The known gases and fumes that may form during welding or cutting and their exposure limits are noted in the list in Section 11 below. Decomposition products of normal operation include those originating from the volatilization, reaction, or oxidation of the materials shown in Section 8, plus those from the base metal and coating, etc. as noted above. Chlorinated solvents may be decomposed into toxic gases such as phosgene. It is understood, however, that the elements and/or oxides to be mentioned are virtually always present as complex oxides and not as metals (See "Characterization of Arc Welding Fume", from the American Welding Society). The elements or oxides listed Section 8 correspond to the ACGIH categories found in "Threshold Limit Values for Chemical Substances and Physical Agents" listed in Section 8. Some products will also contain: carbon, chromium, copper, iron, manganese, molybdenum, nickel, niobium, silicon, tungsten and cobalt. Some elements or compounds may exceed their PELs/TLVs before the total fumes exceed 5 mg/m³.

SECTION -11 TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Effects of Over-Exposure: Electric arc welding may create one or more of the following health hazards:

- ARC RAYS can injure eyes and burn skin. Incidences of skin cancer have been reported.
- ELECTRIC SHOCK can kill.
- FUMES AND GASES GENERATED FROM WELDING can be dangerous to your health.
- PRIMARY ROUTES OF ENTRY are the respiratory system, eyes, skin, and/or indigestion.
- NOISE can damage hearing.

Short-term (acute) over-exposure effects:

- WELDING FUMES may result in discomfort, such as dizziness, nausea, or dryness or irritation of the nose, throat, or eyes.
- ALUMINUM OXIDE may cause irritation of the respiratory system.
- IRON, IRON OXIDE have no known effects. Treat as a nuisance dust or fume.
- MANGANESE, MANGANESE COMPOUNDS may cause metal fume fever, characterized by irritation of the throat, vomiting, nausea, fever, body aches, and chills. Recovery is generally complete within 48 hours of overexposure
- MOLYBDENUM may cause irritation of the eyes, nose, and throat.
- NICKEL, NICKEL COMPOUNDS may cause metallic taste, nausea, tightness in chest, fever, and allergic reactions.
- TITANIUM DIOXIDE may cause irritation of the respiratory system.
- COPPER may cause capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure.



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Long-term (chronic) over-exposure effects:

- WELDING FUMES in excess levels may cause bronchial asthma, lung fibrosis, pneumoconiosis, or 'siderosis.' Overexposure to air contaminants may lead to their accumulation in the lungs, a condition which may be seen as dense areas on chest x-rays. The severity of the changes proportional to the length of exposure. The changes seen are not necessarily associated with symptoms or signs of reduced lung function or disease. In addition, the changes on X-rays may be caused by non-work factors such as smoking, etc.
- ALUMINUM OXIDE may cause pulmonary fibrosis and emphysema.
- IRON, IRON OXIDE may cause siderosis or deposits of iron in the lungs, which is believed to affect pulmonary function. Lungs will clear in time when exposure to iron fumes and its compounds ceases. Iron and magnetite (Fe₃O₄) are not regarded as fibro genic materials.
- MAGNESIUM, MAGNESIUM OXIDE overexposure may cause metal fume fever, characterized by metallic taste, tightness of chest, and fever. Symptoms may last 24-48 hours following overexposure.
- MANGANESE, MANGANESE COMPOUNDS may cause central nervous system effects referred to as 'manganism.' Symptoms include languor, sleepiness, muscular weakness, emotional disturbances, spastic gait, and tremors. Behavioural changes and changes in handwriting may also appear. These effects are irreversible. Employees overexposed to manganese should receive regular medical examinations for early detection of manganism.
- COPPER may cause hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has led to haemolytic anaemia and accelerates arteriosclerosis.

Acute toxicity:**· LD/LC50 values that are relevant for classification:****7429-90-5 Aluminium**

Oral	LD50	>2,000 mg/kg (Rat)
Inhalative	LC50/4 h	888 mg/l (Rat)

7440-21-3 Silicon

Oral	LD50	3,160 mg/kg (Rat)
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7439-96-5 Manganese

Oral	LD50	9,000 mg/kg (Rat)
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7440-66-6 Zinc

Oral	LD50	>2,000 mg/kg (Rat)
Inhalative	LC50/4 h	>5,410 mg/l (Rat)

· Primary irritant effect:**· On the skin:**

Irritant to skin and mucous membranes. May cause an allergic skin reaction.

· On the eye: Irritating effect.**· Sensitization:** Sensitization possible through inhalation. Sensitization possible through skin contact.



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Additional toxicological information:

The product shows the following dangers according to internally approved calculation methods for preparations:
Harmful Irritant

Symptoms of systemic copper poisoning may include: capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Death may occur from shock or renal failure. Chronic copper poisoning is typified by hepatic cirrhosis, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to haemolytic anaemia and accelerates arteriosclerosis.

Carcinogenic categories:

· IARC (International Agency for Research on Cancer):

- Group 1 - Carcinogenic to humans
- Group 2A - Probably carcinogenic to humans
- Group 2B - Possibly carcinogenic to humans
- Group 3 - Not classifiable as to its carcinogenicity to humans
- Group 4 - Probably not carcinogenic to humans

7440-47-3	Chromium	3
7440-41-7	Beryllium	1

NTP (National Toxicology Program):

7440-41-7	Beryllium	K
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OSHA-Ca (Occupational Safety & Health Administration):

7440-41-7	Beryllium
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SECTION -12 ECOLOGICAL INFORMATION

Toxicity:

Aquatic Toxicity:

Avoid release into the environment. Runoff from fire control or dilution water may cause pollution.

7440-50-8 Copper

EC50	0.04-0.05 mg/l (Water flea)
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7439-96-5 Manganese

EC50	40 mg/l (Water flea)
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- **Persistence and degradability:** No further relevant information available.
- **Behaviour in environmental systems:**
- **Bio accumulative potential:** No further relevant information available.
- **Mobility in soil:** No further relevant information available.
- **Ecotoxic effects remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**

Do not allow undiluted product or product that has not been neutralized to reach groundwater, water course or sewage system.

- Results of PBT and vPvB assessment:
- PBT: Not applicable.
- vPvB: Not applicable.

Other adverse effects: No further relevant information available



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SECTION -13 DISPOSAL CONSIDERATIONS

·Waste treatment methods

· **Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Observe all federal, state and local environmental regulations when disposing of this material.

·**Uncleaned packaging Recommendation :** Disposal must be made according to official regulations

SECTION -14 TRANSPORT INFORMATION

·UN-Number:

· DOT, ADR/ADN, ADN, IMDG, IATA Non-Regulated Material

· UN proper shipping name:

· DOT, ADR/ADN, ADN, IMDG, IATA Non-Regulated Material

· Transport hazard class(es):

·DOT, ADR/ADN, ADN, IMDG, IATA

· Class: Non-Regulated Material

· Packing group:

· DOT, ADR/ADN, IMDG, IATA Non-Regulated Material

· Environmental hazards: Not applicable.

· Special precautions for user: Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

UN "Model Regulation": Non-Regulated Material

SECTION -15 REGULATORY INFORMATION

·Safety, health and environmental regulations/legislation specific for the substance or mixture:

·SARA (Superfund Amendments and Reauthorization):

Section 355 (extremely hazardous substances):

None of the ingredients are listed

Section 313 (Specific toxic chemical listings):

7429-90-5	Aluminium
7440-50-8	Copper
7439-96-5	Manganese
7440-47-3	Chromium
7440-66-6	Zinc
7440-41-7	Beryllium

TSCA (Toxic Substances Control Act):

All components have the value ACTIVE.

Hazardous Air Pollutants

7439-96-5	Manganese
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California Proposition 65



WARNING: This product can expose you to chemicals including the listed chemicals which are known to the State of California to cause cancer, birth defects and other reproductive harm. For more information, go to www.P65Warnings.ca.gov.

Chemicals known to cause cancer

7440-41-7	Beryllium
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Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

New Jersey Right-to-Know List:

7429-90-5	Aluminium
7440-21-3	Silicon
7440-50-8	Copper
7439-95-4	Magnesium
7439-96-5	Manganese
7440-47-3	Chromium
7440-66-6	Zinc
7440-48-4	Zirconium
7440-32-6	Titanium
7440-41-7	Beryllium

New Jersey Special Hazardous Substance List:

7429-90-5	Aluminium	F3, R1
7440-21-3	Silicon	F3
7439-96-5	Manganese	F3, R1
7440-47-3	Chromium	F3
7440-66-6	Zinc	F3, R1
7440-48-4	Zirconium	F4, R1
7440-32-6	Titanium	F3, R1
7440-41-7	Beryllium	CA



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Pennsylvania Right-to-Know List:

7429-90-5	Aluminium
7440-21-3	Silicon
7440-50-8	Copper
7439-95-4	Magnesium
7439-96-5	Manganese
7440-47-3	Chromium
7440-66-6	Zinc
7440-48-4	Zirconium
7440-41-7	Beryllium

Pennsylvania Special Hazardous Substance List:

7429-90-5	Aluminium	E
7440-50-8	Copper	E
7439-96-5	Manganese	E
7440-47-3	Chromium	ES
7440-66-6	Zinc	E
7440-41-7	Beryllium	ES

Carcinogenic categories:

EPA (Environmental Protection Agency):

7440-50-8	Copper	D
7439-96-5	Manganese	D
7440-47-3	Chromium	D
7440-66-6	Zinc	D
7440-41-7	Beryllium	B1, K/L(inh), CBD(oral)

TLV (Threshold Limit Value established by ACGIH):

7429-90-5	Aluminium	A4
7440-47-3	Chromium	A4
7440-67-7	Zirconium	A4
7440-41-7	Beryllium	A1



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NIOSH-Ca (National Institute for Occupational Safety and Health):

7440-41-7	Beryllium
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· GHS label elements

The product is classified and labelled according to the Globally Harmonized System(GHS).

Hazard pictograms:



· **Signal word: Warning**

· **Hazard-determining components of labelling:**

Titanium

· **Hazard statements:**

H320 Causes eye irritation.

H317 May cause an allergic skin reaction. H402 Harmful to aquatic life.

H412 Harmful to aquatic life with long lasting effects.

Precautionary statements:

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.

P264: Wash thoroughly after handling.

P272: Contaminated work clothing must not be allowed out of the workplace.

P273: Avoid release to the environment.

P280: Wear protective gloves/protective clothing/eye protection/face protection.

P304+P312: If INHALED: Call a POISON CENTER/doctor if you feel unwell.

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.

P405: Store locked up.

P501: Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations:

None of the ingredients are listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

SECTION -16 OTHER INFORMATION

ROYALE WELDWELL urges 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. This information is believed to be accurate as of the revision date shown above. However, no warranty, expressed or implied, is given. Because the conditions or methods of use are beyond ROYALE WELDWELL's control, we assume no liability resulting from the use of this product. Regulatory requirements are subject to change and may differ between various locations. Compliance with all applicable Federal, State, Provincial, and Local laws and regulations remain the responsibility of the user.

· Date of last revision/ revision number: · 09/18/2019 / 3

· **Abbreviations and acronyms:**

ADR: The European Agreement concerning the International Carriage of Dangerous Goods by Road

ADN: The European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways

IMDG: International Maritime Code for Dangerous Goods

DOT: US Department of Transportation

IATA: International Air Transport Association



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- ACGIH: American Conference of Governmental Industrial Hygienists
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - ELINCS: European List of Notified Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - HMIS: Hazardous Materials Identification System (USA)
 - VOC: Volatile Organic Compounds (USA, EU)
 - LC50: Lethal concentration, 50 percent
 - LD50: Lethal dose, 50 percent
 - PBT: Persistent, Bio accumulative and Toxic
 - vPvB: very Persistent and very Bio accumulative
 - NIOSH: National Institute for Occupational Safety and Health
 - OSHA: Occupational Safety & Health Administration
 - TLV: Threshold Limit Value
 - PEL: Permissible Exposure Limit
 - REL: Recommended Exposure Limit
 - BEI: Biological Exposure Limit
 - Flam. Sol. 1: Flammable solids – Category 1
 - Flam. Sol. 2: Flammable solids – Category 2
 - Pyr. Sol. 1: Pyrophoric solids – Category 1
 - Water-react. 1: Substances and mixtures which in contact with water emit flammable gases – Category 1
 - Acute Tox. 3: Acute toxicity – Category 3
 - Acute Tox. 4: Acute toxicity – Category 4
 - Acute Tox. 2: Acute toxicity – Category 2
 - Skin Corr. 1A: Skin corrosion/irritation – Category 1A
 - Skin Corr. 1C: Skin corrosion/irritation – Category 1C
 - Skin Irrit. 2: Skin corrosion/irritation – Category 2
 - Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
 - Eye Irrit. 2B: Serious eye damage/eye irritation – Category 2B
 - Skin Sens. 1: Skin sensitisation – Category 1
 - Carc. 1B: Carcinogenicity – Category 1B
 - STOT SE 3: Specific target organ toxicity(single exposure) – Category 3
 - STOT RE 1: Specific target organ toxicity(repeated exposure) – Category 1
 - Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1
 - Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3
 - Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1
 - Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3
 - Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4
- * Data compared to the previous version altered.