



THAI HANSA WELDING ELECTRODES

MATERIAL SAFETY DATA SHEET

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Type : STAINLESS STEEL WELDING ELECTRODES
 Sizes : All
 Application : Arc Welding
 Classification : AWS A5.4
 Manufacturer/Supplier Name : THAI HANSA WELDING ELECTRODES CO., LTD
 Telephone No : +666-323-0605
 Address : 386/2 MU 1, SOI BEE-THAI, SUKHUMVIT ROAD,
 BANGPOOMAI, SAMUTPRAKARN 10280, THAILAND
 Website : www.geminiwelding.com

SECTION 2. HAZARDS IDENTIFICATION

Emergency Overview : Metal wires or rods in varying colors. These products are normally not considered hazardous as shipped. Gloves should be worn when handling to prevent cuts and abrasions.

These products contain nickel, which is classified as a skin sensitizer and a suspect carcinogen. In the form that nickel is present in these products it does not contribute to a hazard classification of the products.

Skin contact is normally no hazard but should be avoided to prevent possible allergic reactions.

Persons with a pacemaker should not go near welding or cutting operations until they have consulted their doctor and obtained information from the manufacturer of the device.

When these products are used in a welding process, the most important hazards are heat, radiation, electric shock and welding fumes.

Heat : Spatter and melting metal can cause burn injuries and start fires.

Radiation : Arc rays can severely damage eyes or skin.

Electricity : Electric shock can kill.

Fumes : Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes. Chronic overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.

SECTION 3. COMPOSITION / INFORMATION ON INGREDIENTS

These products are continuous metal wire and solid metal rods.

Ingredients	CAS	EINECS#	HAZARD classification ⁽¹⁾	IARC ⁽²⁾	NTP ⁽³⁾	OSHA LIST ⁽⁴⁾
Chromium	7440-47-3	231-157-5	No	--	--	--
Copper	7440-50-8	213-159-6	No	--	--	--
Iron	7439-89-6	231-096-4	No	--	--	--
Manganese	7439-96-5	231-105-1	No	--	--	--
Molybdenum	7439-98-7	231-107-2	No	--	--	--
Nickel	7440-02-0	231-111-4	Carc. Cat. 3; R40-R43	2B	S	--
Niobium	7440-02-0	231-113-5	No	--	--	--
Silicon	7440-21-3	231-130-8	No	--	--	--
Tungsten	7440-33-7	231-143-9	No	--	--	--

(1) Hazard Classification according to European Council Directive 67/548/EEC, for R-phrases, see Section 16.

(2) Evaluation according to the International Agency for Research on Cancer. 1 – Human Carcinogen 2B – Possibly carcinogenic to humans

(3) Classification according to the 11th Report on Carcinogens, published by the US National Toxicology Program. K – Known Carcinogen S – Suspect Carcinogen

(4) Carcinogen listing according to OSHA,

Mixtures

Component	Concentration
IRON (CAS no.: 7439-89-6)	50 - 75 % (weight)
CLASSIFICATIONS: No data available	
Chromium compounds (as Cr (III)) (CAS no.: 7440-47-3)	10 - 25 % (weight)
CLASSIFICATIONS: Sensitization, skin, Cat. 1; Sensitization, respiratory, Cat. 1; Serious eye damage/eye irritation, Cat. 2; Hazardous to the aquatic environment, long-term (chronic), Cat. 4.	
NICKEL (CAS no.: 7440-02-0; EC no.: 231-111-4)	10 - 25 % (weight)
CLASSIFICATIONS: Carcinogenicity, Cat. 2; Specific target organ toxicity (repeated exposure), Cat. 1 ; Sensitization, skin, Cat. 1; Hazardous to the aquatic environment, long-term (chronic), Cat. 3.	
Manganese (CAS no.: 7439-96-5)	5 - 10 % (weight)
CLASSIFICATIONS: No data available	
Copper (CAS no.: 7440-50-8)	1 - 5 % (weight)
CLASSIFICATIONS: Hazardous to the aquatic environment, long-term (chronic), Cat. 3; Hazardous to the aquatic environment, short-term (acute), Cat. 1.	
Molybdenum (CAS no.: 7439-98-7)	1 - 5 % (weight)
CLASSIFICATIONS: No data available	
Aluminum (CAS no.: 7429-90-5; EC no.: 231-072-3)	1 - 5 % (weight)
CLASSIFICATIONS: Flammable solids, Cat. 1; Substances and mixtures which, in contact with water, emit flammable gases, Cat. 2.	
Silicon (CAS no.: 7440-21-3)	1 - 5 % (weight)
CLASSIFICATIONS: No data available.	
CALCIUM (CAS no.: 7440-70-2; EC no.: 231-179-5)	1 - 5 % (weight)
CLASSIFICATIONS: Substances and mixtures which, in contact with water, emit flammable gases, Cat. 2.	
COBALT (CAS no.: 7440-48-4; EC no.: 231-158-0)	0.1 - 1 % (weight)
CLASSIFICATIONS: Sensitization, respiratory, Cat. 1; Sensitization, skin, Cat. 1; Hazardous to the aquatic environment, long-term (chronic), Cat. 4.	

SECTION 4. FIRST AID MEASURES

Inhalation : If breathing has stopped, perform artificial respiration and obtain medical assistance immediately! If breathing is difficult, provide fresh air and call physician.

Eye contact : For radiation burns due to arc flash, see physician. To remove dusts or fumes flush with water for at least fifteen minutes. If irritation persists, obtain medical assistance.

Skin contact : For skin burns from arc radiation, promptly flush with cold water. Get medical attention for burns or irritations that persist. To remove dust or particles wash with mild soap and water.

Electric shock : Disconnect and turn off the power. Use a nonconductive material to pull victim away from contact with live parts or wires. If not breathing, begin artificial respiration, preferably mouth-to-mouth. If no detectable pulse, begin Cardio Pulmonary Resuscitation (CPR). Immediately call a physician.

General : Move to fresh air and call for medical aid.

SECTION 5. FIRE FIGHTING MEASURES

No specific recommendations for welding consumables. Welding arcs and sparks can ignite combustible and flammable materials. Use the extinguishing media recommended for the burning materials and fire situation. Wear self-contained breathing apparatus as fumes or vapors may be harmful.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Solid objects may be picked up and placed into a container. 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.

Personal precautions : refer to Section 8.

Environmental precautions : refer to Section 13.

SECTION 7. HANDLING AND STORAGE

Handling :

Handle with care to avoid stings and cuts. Wear gloves when handling welding consumables. Avoid exposure to dust. Do not ingest.

Some individuals can develop an allergic reaction to certain materials. Retain all warning and identity labels.

Storage :

Keep separate from chemical substances like acids and strong bases, which could cause chemical reactions.

SECTION 8. EXPOSURE CONTROL/PERSONAL PROTECTION

Avoid exposure to welding fumes, radiation, spatter, electric shock, heated materials and dust.

Engineering measures:

Ensure sufficient ventilation, local exhaust, or both, to keep welding fumes and gases from breathing zone and general area.

Keep working place and protective clothing clean and dry. Train welders to avoid contact with live electrical parts and insulate.

conductive parts. Check condition of protective clothing and equipment on a regular basis.

Personal protective equipment:

Use respirator or air supplied respirator when welding or brazing in a confined space, or where local exhaust or ventilation is not sufficient to keep exposure values within safe limits. Use special care when welding painted or coated steels since hazardous substances from the coating may be emitted. Wear hand, head, eyes, ear and body protection like welders gloves, helmet or face shield with filter lens, safety boots, apron, arm and shoulder protection. Keep protective clothing clean and dry.

Use industrial hygiene monitoring equipment to ensure that exposure does not exceed applicable national exposure limits. The following limits can be used as guidance. For information about welding fume analysis refer to Section 10.

Substance	CAS#	ACGIH TLV ⁽¹⁾ mg/m ³	OSHA PEL ⁽²⁾ mg/m ³
Chromium Compounds	7440-47-3		
Metal (as Cr)		0.5	1
Cr (VI), inorganic, water insoluble (as Cr)		0.05*	0.005*
Cr (VI), inorganic, water soluble (as Cr)		0.01*	0.005*
Copper (metal) fume	7440-50-8	0.2	0.1 (fume)
dust/mist			1 (dust/mist)
Iron (as iron oxide)	7439-89-6	5**	10 (fume)
Manganese & Manganese compounds (as Mn)	7439-96-5	0.2	5 ceiling
Molybdenum Metal & Insoluble Cmpds	7439-98-7	3**, 10***	15*
Soluble Cmpds		0.5**	
Nickel (inhalable fraction)	7440-02-0	1.5	1
Niobium	7440-03-1	None	None
Silicon (nuisance dust)	7440-21-3	Withdrawn	15*, 5**
Tungsten (metal)	7440-33-7	5, 10 (STEL)	None

* Total dust, ** Respirable fraction, *** Inhalable fraction.

NOTE: Some of these products may not contain all of the materials listed. For details of composition, refer to the COMPOSITION TABLE in Section 3.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : Solid, non-volatile with varying color.

Melting Point : >1000°C / >1800°F

SECTION 10. STABILITY AND REACTIVITY

General : These products are only intended for normal welding purposes.

Stability : These products are stable under normal conditions.

Reactivity : Contact with chemical substances like acids or strong bases could cause generation of gas.

When these products are used in a welding process, hazardous decomposition products would include those from the 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 these products varies with welding parameters and dimensions but is generally no more than 1 to 10 g/kg consumable. Fumes from these products may contain compounds of the following chemical elements: Fe, O, Mn, Cr, Ni, Si, Mo, Cu, W, and Nb. The rest is not analyzed, according to available standards.

Refer to applicable national exposure limits for fume compounds, including those exposure limits for fume compounds found in

Section 8. A significant amount of the chromium in the fumes can be hexavalent chromium, which has a very low exposure limit in some countries. Manganese and nickel also have low exposure limits, in some countries, that may be easily exceeded.

Reasonably expected gaseous products would include carbon oxides, nitrogen oxides and ozone. Air contaminants around the welding area can be affected by the welding process and influence the composition and quantity of fumes and gases produced.

SECTION 11. TOXICOLOGICAL INFORMATION

Inhalation of welding fumes and gases can be dangerous to your health. Classification of welding fumes is difficult because of varying base materials, coatings, air contamination and processes. The International Agency for Research on Cancer has classified welding fumes as possibly carcinogenic to humans (Group 2B).

Acute toxicity : Overexposure to welding fumes may result in symptoms like metal fume fever, dizziness, nausea, dryness or irritation of the nose, throat or eyes.

Chronic toxicity : Overexposure to welding fumes may affect pulmonary function. Prolonged inhalation of nickel and chromium compounds above safe exposure limits can cause cancer. Overexposure to manganese and manganese compounds above safe exposure limits can cause irreversible damage to the central nervous system, including the brain, symptoms of which may include slurred speech, lethargy, tremor, muscular weakness, psychological disturbances and spastic gait.

SECTION 12. ECOLOGICAL INFORMATION

Welding consumables and materials could degrade/weather into components originating from the consumables or from the materials used in the welding process. Avoid exposure to conditions that could lead to accumulation in soils or groundwater

SECTION 13. DISPOSAL CONSIDERATIONS

Discard any product, residue, disposable container or liner in an environmentally acceptable manner, in full compliance with federal and local regulations. Use recycling procedures if available.

SECTION 14. TRANSPORT INFORMATION

No international regulations or restrictions are applicable.

SECTION 15. REGULATORY INFORMATION

Read and understand the manufacturer's instructions, your employer's safety practices and the health and safety instructions on the label. Observe any federal and local regulations. Take precautions when welding and protect yourself and others.

WARNING : Welding fumes and gases are hazardous to your health and may damage lungs and other organs. Use adequate ventilation.

ELECTRIC SHOCK can kill.

ARC RAYS and **SPARKS** can injure eyes and burn skin.

Wear correct hand, head, eye and body protection.

SECTION 16. OTHER INFORMATION

THAI HANSA WELDING ELECTRODES requests the users of these products to study this Material Safety Data Sheet (MSDS) and become aware of product hazards and safety information. To promote safe use of these products a user should:

- notify its employees, agents and contractors of the information on this SDS and any product hazards/safety information.
- furnish this same information to each of its customers for these products.
- request such customers to notify employees and customers for the same product hazards and safety information.

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