

STAINLESS STEEL / SPECIALITY STEEL – MATERIAL SAFETY DATA SHEET

Material Use: Manufacture of articles.
Includes all sheet products, plate, strip, bar, slab, ingots, slabs and tubular products.

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1. HAZARDOUS INGREDIENTS

BASE METAL		(All values are expressed as weight percent)				
Component (*)	CAS Number	TLV ACGIH (mg/m ³)	LD 50 / LC50	Electric Alloy Steel	Tool Steels	300, 400 Series Stainless Steels
Iron (Fe)	7438-86-5	5 (Fume)	N/A	95	90	80
Chromium (Cr)	7440-47-3	0.5	N/A	5	25	30
Nickel (Ni)	7440-02-0	1	>9 gm/kg Oral Rat	5	5	35
Molybdenum (Mo)	7439-98-7	10	N/A	2	5	6
Vanadium (V)	1314-62-1	0.05	N/A	2	5	-
Cobalt (Co)	7440-48-4	0.75	N/A	75	8	1
Manganese (Mn)	7439-96-5	1 (fume)	>9 gm/kg Oral Rat	-	-	2.5
Aluminium (Al)	7429-90-5	10	N/A	1.5	-	-
Silicon (Si)	7440-21-3	10	N/A	2	2.5	-
Copper (Cu)	7440-50-8	0.2 (fume)	N/A	-	-	5

* (As required by WHMIS ingredient disclosure list. For exact composition, refer to analysis or specifications)

The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond knowledge. For this and other reasons, we do not assume responsibility and disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.

Dry-Lube

Mixture of borate and carbonate soap lubricants for metal forming.

Pre-Lube

Petroleum based oil coating used for metal forming.

Slushing Oil

Mineral oil based protective coating containing small quantities of anti-oxidants.

Varnishing Oil

Solvent applied petroleum oil protective coating leaving a wax-like protective coating.

NOTE:

Individual coating components are present at values below the reporting requirements of the WHMIS ingredient disclosure list.

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4. PHYSICAL DATA

Physical State: Solid
Odor: N/A
Evaporation Rate: N/A
Boiling Point: N/A
Vapor Pressure: N/A
Vapor Density: N/A
Freezing Point: 1530 Degrees Celsius
Density: 7.86
Coefficient Water / Oil Distribution: N/A
PH: N/A
Odor Threshold: N/A
Appearance: Silver Grey Metallic (Steel)
Solubility in Water: N/A
Specific Gravity: 7.5 – 8.5

5. FIRE / EXPLOSION HAZARD

1. Conditions of flammability: Steel products (Copper Metal) does not present fire or explosion hazards under normal conditions. Fine metal particles such as those produced in grinding or sawing can burn. High concentrations of metal filings may present an explosion hazard.
2. Means of extinction: For molten metal use dry powder or sand. Do NOT use water on molten metals.
3. Flashpoint and method of determination: N/A (under normal conditions)
- 4/5. Upper and Lower flammable Limit: N/A (under normal conditions)
6. Auto-ignition temperature: N/A (under normal conditions)
7. Hazardous Combustion Products: N/A (under normal conditions)
8. Explosion Data: sensitivity to mechanical impact: N/A (under normal conditions)
9. Explosion Data: sensitivity to static discharge: N/A (under normal conditions)

6. REACTIVITY DATA

Chemical Stability: STABLE – under normal conditions of use and storage.
Conditions of Reactivity: N/A
Hazardous Decomposition Products: N/A
Incompatibility to Other Substances: YES - Contact with Strong Mineral Acids will release Hydrogen Gas

7. TOXICOLOGICAL PROPERTIES

Route of Entry:

Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals. Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.

Effects of Acute Exposure to Material:

Inhalation overexposure to manganese, copper or zinc (coated products) may cause metal fume fever characterized by fever and chills (flu-like symptoms). Appears 4-6 hours after exposure with no long-term effects.

Effects of Acute Chronic Exposure to Material:

Prolonged inhalation overexposure to metal fume from product may cause the following effects: benign pneumoconiosis (siderosis) with few or now symptoms (iron oxide); certain nickel and chromium compounds have been listed with IARC as nasal lung carcinogens. Cobalt dust may result in an asthma-like condition (cough / shortness of breath).

Irritancy of Material: N/A
Sensitization to Material: N/A
Mutagenicity of Material: N/A
Reproductive Effects: N/A
Teratogenicity of Material: N/A
Synergistic Materials: N/A
Carcinogenicity of Material: N/A

IARC lists certain hexavalent chromium compounds under its group 1 category - "Confirmed Human Carcinogen."
IARC lists nickel and certain nickel compounds under its group 2A category – "Suspected Human Carcinogen."

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NOTE:

Iron containing welding fumes has an exposure limit of 5 mg/m³ (ACGIH – TLV's 1988-89). Welding fumes may also contain contaminants from fluxes or welding consumables.

8. PREVENTATIVE MEASURES

Personal Protective Equipment: Dependant upon processes being performed on material. Each operator must be addressed for suitable equipment. All protective equipment is recommended during welding, burning and handling.

Gloves: Protective gloves should be worn during welding, burning or handling operations

Clothing: As required, dependent on the operations and local safety codes

Safety Glasses: goggles or face shields should be utilized as required by exposure.

Respiratory: NIOSH / MSHA approved dust and fume respirator should be used to avoid excessive inhalation of particles when exposure exceeds TLV's.

Footwear: CSA Z195.02 (Steel toed safety shoes)

Eye: Safety glasses, goggles or face shield should be worn as required by exposure.

Other: N/A

Engineering Controls (e.g. ventilation, enclosures, specify)

Ventilation: General or local exhaust ventilation during corrosion.

Leak and Spill Procedures: N/A

Waste Disposal: N/A

Storage Requirements: N/A

Special Shipping Information: N/A

9. FIRST AID MEASURES

Skin: Maintain good personal hygiene. Wash with soap and water. Seek medical attention if irritation persists.

Inhalation: Move to fresh air. Seek medical attention if necessary.

Eyes: For irritation from any coating material, flush eyes with plenty of water for a period of no less than 15 minutes.

Note: Respiratory disorders may be aggravated by exposure to metallic and/or organic/inorganic coating dust or fumes. Consult a Physician.

Do not induce vomiting or give liquids to an unconscious person.