



Earle M. Jorgensen Company

Material Safety Data Sheet

Company EMJ 3050 E. Birch Brea, California 92621	Issue Date November 1, 1995	Identification STLS
Product Name (if different from Chemical Name) Stainless Steel	Emergency Phone Number (714) 579-6623	or contact your nearest EMJ office
Chemical Name Examples: 304, 347, 17-4, 410	Form Bar, Sheet, Plate, Tubing, Structural, and Forgings	

I. INGREDIENTS

Material or Component	CAS Number	% Weight	Exposure Limits	
			OSHA PEL (mg/m ³)	ACGIH TLV (mg/m ³)
Base Metal				
Iron (Fe)	7439-89-6	39-81	10 (Fe ₂ O ₃ Fume)	5.0 (Fe ₂ O ₃ Fume)
Alloying Elements				
Carbon (C)	7440-44-0	0.5 Max	None Listed	None Listed
Manganese (Mn)	7439-96-6	10.0 Max	5.0 as Manganese	1.0 as Manganese
Phosphorous (P)	7723-14-0	0.001 - 0.2	0.1 as Phosphorous	0.1 as Phosphorous
Sulfur (S)	7704-34-9	0.001 - 0.35	13 (Sulfur Dioxide)	5 (Sulfur Dioxide)
Silicon (Si)	7440-21-3	2.0 Max	None Listed	None Listed
Chromium (Cr)	7440-47-3	10 - 27	1.0 as Chromium	0.5 as Chromium
Nickel (Ni)	7440-02-0	0 - 22	1.0 as Nickel	1.0 as Nickel
Selenium (Se)	7782-49-2	0 - 0.35	0.2 as Selenium	0.2 as Selenium
Columbium (Cb)	7440-03-1			
Tantalum (Ta)	7440-25-7	10 x C % Wt	5.0 as Tantalum	5.0 as Tantalum
Copper (Cu)	7440-50-8	0.04 - 4	0.2 as Copper	0.2 as Copper
Molybdenum (Mo)	7439-98-7	0 - 4	5.0 Soluble Compds	5.0 Soluble Compds
Aluminum (Al)	7429-90-5	0 - 2	None Listed	5.0 as welding fumes
Titanium (Ti)	7440-32-6	0.70 Max	15 as Ti O ₂	10 as total dust

Note: The above listing is a summary of elements used to alloy stainless steel. Various grades of steel will contain different combinations of these elements. Trace elements may also be present in minute amounts.

II. PHYSICAL DATA

Material is (At Normal Conditions): <input type="checkbox"/> Liquid <input checked="" type="checkbox"/> Solid <input type="checkbox"/> Gas <input type="checkbox"/> Other				Appearance and Odor Gray-Black With Metallic Lustre — Odorless
Acidity/Alkalinity ph = NA	Approx Melting Point 2700°F Boiling Point NA °F	Specific Gravity (H₂O = 1) — Approx 8 Solubility in water (% by weight) — NA		Vapor Pressure (mm Hg at 20°C) NA

III. PERSONAL PROTECTIVE EQUIPMENT

Respiratory Protection NIOSH approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.	Hands, Arms, and Body Use appropriate protective clothing such as welders aprons & gloves when welding or burning. Check local codes.
Eye Protection Safety glasses should always be worn when grinding or cutting; face shields should be worn when welding or burning.	Other Clothing and Equipment As required for protection depending on the operation and safety codes.

IV. EMERGENCY MEDICAL PROCEDURES

Inhalation: Remove to fresh air; if condition continues, consult physician.	
Eye Contact: Immediately flush well with running water to remove particulate; get medical attention.	
Skin Contact: If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.	
Ingestion: If significant amounts of metal are ingested, seek medical attention.	

V. HEALTH/SAFETY INFORMATION

HEALTH

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, burning, sawing, brazing, grinding, and possibly machining, which results in elevating the temperature of the product to or above its melting point or results in the generation of airborne particulates may present hazards. The above operations should be performed in well ventilated areas. The major exposure hazard is inhalation.

Effects of overexposure are as follows:

Acute: Excessive inhalation of all metallic fumes and dusts may result in irritation of eyes, nose, and throat. Also high concentrations of fumes and dusts of iron-oxide, manganese, copper, & selenium may result in metal fume fever. Typical symptoms consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever, and usually last from 12 to 48 hours.

Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to the conditions listed opposite the element:

Iron (iron-oxide) - Pulmonary effects, siderosis.

Manganese - Bronchitis, pneumonia, loss of coordination, central nervous system.

Chromium - Various forms of dermatitis, inflammation and/or alteration of upper respiratory tract, and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume involves human cancer.

Nickel - SAME AS CHROMIUM.

Selenium - Nasal and bronchial irritation, gastro-intestinal catarrhes, necrosis of breast.

Copper - Pulmonary effects, nasal and nonnasal sinusitis, oral and liver.

Vanadium - May affect lungs. May affect blood pressure as vanadium content in.

Cobalt - Inhalation of cobalt dust may cause an asthma like disease with shortness of breath and cyanosis.

Molybdenum - Pain in joints, hands, knees and feet.

Medical conditions generally aggravated by exposure would be dermatitis and pulmonary disease or disorders.

Chromium and nickel have been identified by the International Agency for Research on Cancer (IARC) and the National Toxicology Program (NTP) as potential carcinogens. See Ingredients Section I.

FIRE AND EXPLOSION

Flash Point	NA	°F	Auto Ignition Temperature	NA	°F	Flammab: Limits in Air		Extinguishing Media
						Lower	Upper	
						NA	NA	NA
						%	%	

Fire and Explosion Hazards: Steel products in their natural state do not present a fire or explosion hazard. Extinguishing Media Not to be Used: NA

REACTIVITY

Stability	Incompatibility (Materials to Avoid)	Stability under normal conditions of use, storage and transport. Fluids with strong acids to form hydrogen gas at temperatures above melting point, metallic oxide fumes may be liberated.
<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable		

Non-ventilated areas when cutting, welding, burning, or brazing; avoid generation of airborne dusts and fumes. Keep Area Well Ventilated.

Hazardous Decomposition Products

Metallic oxides.

VI. ENVIRONMENTAL

Spill or leak procedures	Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum. Avoid breathing metal fumes or dust.
NA	

Waste Disposal Method:

Dust, etc. -- follow federal, state, and local regulations regarding disposal.

VII. ADDITIONAL INFORMATION

Disclaimer

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