

SAFETY DATA SHEET



Section 1 - Chemical Product and Company Identification Manufacturers Name: VARIOUS						
Product Name / Trade Name Carbon and Alloy Steels (Bar - Hot rolled- Round, Square, Strip, Flat) (Cold Finished - Round, Square, Flat) (Angle - Bar size, Structural) (Channel - Bar, Structural, Junior) (Beam - Standard I, Wide Flange & H, Junior) (Sheet - Hot rolled) (Plate - Floor, Abrasion Resisting) (Pipe) (Tubing - Square, Rectangular) (Expanded Metal - Standard, Flattened) (Bar size Tees) (Grating - Standard, Bar, Stair tread, Catwalk, Grip strut) (Molded Cover Bar) (Re rod) (Threaded Rod) (Rail) (Structural Tees) Galvanized (Sheet, Round, Angle, Channel)						
Section 2 – Hazards Identification						
HMIS RATING - Health 0 Flammability 0 Reactivity 0 HMIS HAZARD INDEX - Minimal 0 Slight 1 Moderate 2 Serious 3 Severe 4						
Note: Steel products in their natural state do not present an inhalation, ingestion or contact hazard. However, operations such as Burning, Welding, Sawing, Brazing, Grinding and Machining may release fumes and/or dusts which may present health hazards if TLV's are exceeded. The major exposure hazard is inhalation. Effects of overexposure to fumes and dust are as follows:						
ACUTE: Excessive inhalation of metallic fumes and dust may result in irritation of eyes, nose, and throat. High concentrations of fumes and dust of iron-oxide, manganese, and zinc may result in metal fume fever. Typical symptoms last from 12 to 48 hours and consist of a metallic taste in the mouth, dryness and irritation of the throat, chills and fever						
CHRONIC: Chronic health effects (including cancer) have been associated with the fumes and dusts of individual component metals, and welding fumes as a general category have been listed by IARC as a carcinogen. See conditions listed opposite the element:						
Iron (Fe)	siderosis, a benign pneumoconiosis, symptoms may include chronic bronchitis, emphysema, and shortness of breath, breathing fumes may result in metal fume fever. Penetration of iron particles into the skin or eye may cause an exogenous or ocular siderosis. Ingestion overexposures may affect the gastrointestinal, nervous, hematopoietic system and the liver					
Aluminum (Al)	Inhaling fumes may result in metal fume fever					
Antimony (Sb)	Inhaling fumes may result in metal fume fever					
Arsenic (As)	Inhaling fumes may result in metal fume fever					
Beryllium (Be)	Inhaling fumes may result in metal fume fever No chronic debilitating symptoms indicated					
Bismuth	no information available					
Boron (B)	Inhaling fumes may result in metal fume fever, Primary target organs are the lung and kidney.					
Cadmium (Cd)	Because of its cumulative nature, chronic cadmium poisoning can cause serious disease which takes many years to develop and may continue to progress despite cessation of exposure. Progression of the disease may not reflect current exposure conditions. It is also capable of causing a painful osteomalacia called "Itai-Itai" in postmenopausal women, and has caused developmental effects and/or reproductive effects in male / female animals. .Cadmium is a listed carcinogen No information available					
Calcium (Ca)	No chronic debilitating symptoms indicated					
Carbon (C)	Inhaling fumes may result in metal fume fever. Prolonged and repeated overexposure to dust or fumes may cause skin ulcers, nasal irritation and ulceration, kidney damage and cancer of the respiratory system. Is listed as a carcinogen					
Chromium (Cr)	Inhaling fumes may result in metal fume fever					
Cobalt (Co)	Dust and fume can irritate the eyes, nose and throat causing coughing, wheezing, nosebleeds, ulcers and metal fume fever. Other effects from repeated inhalation include a metallic or sweet taste, discoloration of skin, teeth or hair, and allergic skin reaction.					
Copper (Cu)	Inhaling fumes may result in metal fume fever,					
Lead (Pb)	Lead can accumulate in the body. Consequently, exposure to fumes or dust may produce signs of polyneuritis, diminished vision and peripheral neuropathy, such as tingling and loss of feeling in fingers, arms and legs. Lead is a known reproductive and developmental toxin. It is also associated with central nervous system disorders, anemia, kidney malfunction and neurobehavioral abnormalities. The brain is a major target organ.					
Magnesium (Mg)	Inhaling fumes may result in metal fume fever, Bronchitis, and pneumonitis. A variety of neurological symptoms including muscle spasms, gait disturbances, tremors, and psychoses.					
Manganese (Mn)	No information available					
Molybdenum (Mo)	No chronic debilitating symptoms indicated					
Niobium (Nb)	Inhaling fumes may result in metal fume fever, Prolonged and repeated contact may cause sensitization dermatitis. Inhalation has caused lung damage as well as sinus, nasal and lung cancer in lab animals.					
Nickel (Ni)	Nickel is a listed carcinogen. No information available					
Nitrogen (N)	Necrosis of the mandible					
Phosphorus (P)	Inhaling fumes may result in metal fume fever					
Selenium (Se)	No chronic debilitating symptoms indicated					
Silicon (Si)	(as sulfur dioxide) Edema of the lungs					
Sulfur (S)	Inhaling fumes may result in metal fume fever					
Tin (Sn)	No information available					
Titanium (Ti)	No information available					
Tungsten (W)	The major target for vanadium pentoxide toxicity is the respiratory tract. Fumes or dust can cause severe eye and respiratory irritation and systemic effects. Emphysema, pneumonia, Chronic bronchitis, green tongue, conjunctivitis, pharyngitis, rhinitis, rales, chronic productive cough, tightness of the chest, and allergic reactions have been reported following overexposure.					
Vanadium (V)	Inhaling fumes may result in metal fume fever, as vanadium pentoxide - Emphysema, pneumonia					
Zinc (Zn)	Gastrointestinal inflammation reported in animal studies					
Section 3 - Composition / Information on Ingredients						
Components	CAS#	% Weight (1)	ACGIH TLV (mg/m ³) (Threshold limit value) (2)		OSHA PEL (mg/m ³) (Permissible exposure limit)	
Base Metal Iron (Fe)	7439-89-6	balance	5	Oxide dust/fume	10	Oxide dust/fume
Alloying Elements						
Aluminum (Al)	7429-90-5	0-.15	10	Dust	15	Dust
			5	Fume	5	Respirable fraction
Antimony (Sb)	7440-36-0	< 1	.5	As Antimony	.5	As Antimony
Arsenic (As)	7440-38-2	< 1	.01	as Arsenic (A1 Carcinogen)	.01	as Arsenic
Beryllium (Be)	7440-41-7	< 1	.002	as Beryllium (A1 Carcinogen)	.002	as Beryllium
Boron (B)	7440-42-8	< 1	10	Oxide dust	15	Oxide dust

Section 3 – Composition / Information on Ingredients cont'd						
Components	CAS#	% Weight (1)	ACGIH TLV (mg/m³) (Threshold limit value) (2)		OSHA PEL (mg/m³) (Permissible exposure limit)	
Cadmium (Cd)	7440-43-9	< 1	.01 .002	as Cadmium (A2 Carcinogen) Respirable fraction	.005 .0025	as Cadmium as Cadmium (action level)
Calcium (Ca)	1305-78-8	0-1	2	Oxide dust	5	Oxide dust
Carbon (C)	7440-4-0	.003-.1.1		not established		not established
Chromium (Cr)	7440-47-3	.01-1	.5	Metal	1	Metal
Cobalt (Co)	7440-48-4	< 1	.02	as Cobalt (A3 Carcinogen)	.1	Metal/Dust/Fume
Copper (Cu)	7440-50-8	.04-1	1 .2	Dust Fume	1 .1	Dust Fume
Lead Pb)	7439-92-1	0-.0.9	.05	Dust / Fume (A3 Carcinogen)	.05	Dust / Fume
Magnesium (Mg)	7439-95-4	0-1		Not established		Not established
Manganese (Mn)	7439-96-5	0.2-2	0.2	Elemental Mn and Inorganic compounds	5	Fume (ceiling)
Molybdenum (Mo)	7439-98-7	0.01-0.8	10	Insoluble compounds	15	Insoluble compounds
Niobium (Nb)	7440-03-1	0-1		Not established		
Nickel (Ni)	7440-02-0	0.01-1	1.5	Metal	1	Metal and insoluble compounds
Nitrogen (N)	7727-37-9	< 1		simple Asphyxiate		simple Asphyxiate
Phosphorus (P)	7723-14-0	0-1	0.1	Phosphorus	0.1	Phosphorus
Selenium (Se)	7782-49-2	< 1	0.2	Selenium	0.2	Selenium
Silicon (Si)	7440-21-3	0-3	10	Dust	15	Dust
Sulfur (S)	7446-09-5	0-1	5.2 13	Sulfur dioxide Sulfur dioxide (STEL)	13	Sulfur dioxide
Tin (Sn)	7723-14-0	0-1	2	Metal, oxide and organic compounds	2	Inorganic compounds
Titanium (Ti)	7440-32-6	0-1		Not established		Not established
Tungsten (W)	7440-33-7	0-1	5 10	Insoluble compounds as W Insoluble compounds as W (STEL)		not Established
Vanadium (V)	7440-62-2	0-1	0.05	Oxide Dust/Fume	0.5	Oxide dust (ceiling)
Zinc (Zn)	7440-66-6	0-.05	10 5 10	Oxide dust Oxide fume Oxide fume (STEL)	0.1 5 10	Oxide Fume (ceiling) Oxide fume Oxide dust

(1) % of alloying material varies with grade of material. (2) ACGIH Threshold Limit Value. (NOTE: No OSHA PEL's or ACGIH TLV exists for steel. Various grades of steel will contain different combinations of these elements and/or trace elements.

Section 4 – First Aid Measures

Carcinogen(N.T.P.) N/A Carcinogen(I.A.R.C.) N/A Medical conditions aggravated by exposure: Individuals with chronic respiratory disorders may be adversely affected by any fume or airborne particulate matter exposure

Emergency Medical Procedures: Inhalation: Remove to fresh air, if condition continues, consult a physician. Eye Contact: Flush thoroughly with running water to remove particulate, obtain medical attention. Skin Contact: Remove particles by washing thoroughly with soap and water. Seek medical attention if condition persists. Ingestion: If significant amounts of metal are ingested, consult a physician

Section 5 - Fire Fighting Measures

Extinguishing Media (Base Metal) N/A (Galvanized) CO₂ Dry Powder extinguisher - Do not use water

Special Fire Fighting Procedures Steel products in the solid state present no fire or explosion hazard

Unusual Fire and Explosion Hazards - Zinc oxide fume Flash Point (method used) Auto ignition (solid zinc in oxygen) 908⁰ C

Special fire fighting procedures Self - contained breathing apparatus

Section 6 – Accidental Release Measures

Spill or Leak procedures: Fine turnings and small chips should be swept or vacuumed. Scrap metal can be reclaimed for reuse. Waste Disposal Method: Used or unused product should be disposed of in accordance with Federal, State and Local disposal or discharge laws.

Section 7 – Handling and Storage

Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Store away from Acids and strong oxidizing agents

Section 8 – Exposure Controls / Personal Protection

Respiratory Protection: An appropriate dust/mist/fume respirator should be used to avoid excessive inhalation of particulate. If exposure limits are reached or exceeded, use NIOSH approved equipment. Hands, Arms, and Body: Protective gloves should be worn as required for welding burning or handling operations. Eyes and Face: Face shields or goggles should be worn when grinding or cutting. Face shields should be worn when welding or cutting. Other Clothing and Equipment: As required depending on operations and safety codes

In welding, precautions should be taken for airborne contaminants which may originate from components of the welding rod.

Arc or Spark generated when welding or burning could be a source of ignition for combustible and flammable materials

Section 9 – Physical and Chemical Properties

Appearance and Odor (Carbon) Gray-Black metallic, Odorless (Galvanized) Silver or Bluish white. Melting Point (Base Metal)>2500⁰ F 420⁰ C (Galvanized)

Specific Gravity approximately 7 - Vapor pressure (mm Hg.)Galvanized 1 mmHg 487⁰ C - Vapor Density (Air = 1)No information Found (NIF) Evaporation Rate NIF

Solubility in water (% by weight) N/A Percent Volatile by Volume (%) N/A

Section 10 – Stability and

Reactivity

Stability – Stable

Incompatibility (Materials to Avoid) Reacts with strong acids to produce Hydrogen gas (Galvanized)Avoid contact with acids and Alkalis

Conditions to avoid N/A

Hazardous Decomposition Products Zinc forms zinc oxide fumes at boiling point. Metallic dust or fumes may be produced during welding, burning, grinding and machining

Section 11 – Toxicological Information

Product in its solid state is not applicable see section 2 for possible results from customer processes.

Section 12 – Ecological Information (non mandatory)

Section 13 – Disposal Considerations (non mandatory)

Section 14 – Transport Information (non mandatory)

Section 15 – Regulatory Information

(This product may contain chemicals subject to reporting requirements of section 313, Emergency Planning and Community Right To Know Act of 1986 and of 40CFR72)

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