

SAFETY DATA SHEET



Revision: August 26, 2015

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|--|---|---------------------|---|------------------------------|---|---------------------|
| 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/m³) (Threshold limit value) (2) | | OSHA PEL (mg/m³) (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 0.1 | Oxide dust (ceiling) Oxide Fume (ceiling) |
| Zinc (Zn) | 7440-66-6 | 0-.05 | 10 5 10 | Oxide dust Oxide fume Oxide fume (STEL) | 5 10 | 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) CO ₂ 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) 908 ⁰ 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)>2500 ⁰ F 420 ⁰ C (Galvanized) | | | | | | |
| Specific Gravity approximately 7 - Vapor pressure (mm Hg.)Galvanized 1 mmHg 487 ⁰ 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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