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Material Safety Data Sheet

Carbon & Alloy Steel Tubing

1 – IDENTIFICATION

COMMON DESCRIPTION:

Carbon or Alloy – Seamless Cold Drawn or Hot Finish – Mechanical or Pressure – To AISI, ASTM, ASME, API, MILT and Other Specifications

2 – INGREDIENTS

Seamless Steel Tubing manufactured from solid steel billet in a broad range of Standard published chemistry grades could contain the following elements depending on the grade of material ordered. Formulation of a particular grade is referenced in the Test Report prepared and made part of the actual shipment. Steel tube products, per se, under normal conditions do not present an inhalation, ingestion or contact health hazard.

ELEMENTS	CAS NUMBER	% WEIGHT	EXPOSURE LIMITS	
			OSHA PEL	ACGIH TLV
IRON (Fe)	7439-89-6	65.0/99.4	10.0 iron oxide fume	5.0 iron oxide fume
ALUMINUM (Al)	7429-90-5	.001/1.30	15.0 dust 5.0 respirable	10.0 as Al ₂ O
BISMUTH (Bi)	7440-69-9	.10/.15	None established	None established
CARBON (C)	7440-44-0	.01/1.10	None established	3.5 as carbon black
CHROMIUM (Cr)*	7440-47-3	.01/20.0	1.0 as Cr metal .05 soluble Cr salts	.05 as Cr metal .05 Cr compounds
COLUMBIUM (Cb)	7440-03-1	.01/.25	None established	None established
COPPER (Cu)	7440-50-8	.01/.60	0.1 fume/1.0 dust	0.2 fume/1.0 fume dust/mist
LEAD (Pb)	7439-92-1	.15/.35	.05Pb dust or fume	.15 Pb dust/1.0 fume
MANGANESE (Mn)*	7439-96-5	.25/2.00	Dust 5.0 Steel 3.0 Fume 1.0 ceiling 5.0	5.0 dust/1.0 fume
MOLYBDENUM (Mo)	7439-98-7	0.01/1.10	10.0 dust	10.0 as insoluble or 5.0-soluble compounds
NICKEL (Ni)*	7440-02-0	.01/4.0	1.0 as Ni metal and Insoluble compounds	1.0 as Ni metal and Insoluble compounds
PHOSPHORUS (P)*	7723-14-0	0.15 max	None for inorganic	.01 as Phosphorus (P)
SILICON (Si)	7440-21-3	.15/2.20	0.1 Dust/Fume	10.0 total Dust
SULFUR (S)	7704-34-9	.001/3.5	13.0 as SO ₂	5.0 as SO ₂
VANADIUM (V)	7740-62-2	.01/.50	0.05 dust 0.05 fume	.05 as respirable dust and fume
Tellurium (Te)	13494-80-9	max .2	0.5 mg/m ³ dust	0.5 mg/m ³ dust
Tin (Sn)	7440-31-5	.008/.013	10 mg/m ³ dust	10 mg/m ³ dust



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NOTE: All commercial metals contain small amounts of elements in addition to those specified. These small quantities, frequently referred to as "trace" or "residual" elements, generally originate in the raw materials used. Typical levels of commonly involved trace or residual elements that may be encountered in steel products are less than 0.1% weight. The weight percentage ranges shown in above table are not an indication of minimum values but rather a generalization when those particular elements are present or added to the steel grade.

3 – PHYSICAL DATA – SOLID STATE

Boiling point – N/A	Melting point Base Metal – 2650 – 2750° F
Vapor Pressure – N/A	Appearance and Odor – Metallic Grey/ Metallic Odor
Vapor Density – N/A	Evaporation Rate – N/A
Specific Gravity – N/A	Solubility in water – N/A
N/A – Not applicable	

4 – FIRE AND EXPLOSION HAZARD DATA

STEEL TUBE PRODUCTS IN THE SOLID STATE PRESENT NO FIRE OR EXPLOSION HAZARD
National Fire Protection Association (NFPA) Code "O" applies

Flash Point – N/A	Extinguishing Media – N/A (LEL/UEL – N/A)
Flammable Limits – N/A	Special Fire Fighting Procedures – N/A
Unusual Fire & Explosion Hazards – N/A	

5 – REACTIVITY DATA

STABILITY: Steel tube products are stable under normal conditions or use, storage and transport.

INCOMPATIBILITY/HAZARDOUS DECOMPOSITION OR BY-PRODUCTS: Will react with various acids to liberate Hydrogen (H) gas. At temperatures above the melting point, fumes containing oxides of iron or alloying elements may be emitted NFPA Code "O" applies.

HAZARDOUS POLYMERIZATION: Will not occur.

6 – HEALTH HAZARD DATA

NOTE: Steel products under normal conditions do not present an inhalation, ingestion or contact health hazard. However, operations such as burning, welding, sawing, brazing, grinding, and possibly machining, etc. which results in elevating the temperature of the product to or above its melting point or results in generation of airborne particles, may present health hazards. Under normal conditions, NFPA Code "O" applies.



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ROUTE OF ENTRY – EFFECTS OF OVER-EXPOSURE BY INHALATION: Chronic inhalation of high concentrations of iron oxide fumes or dusts may lead to a benign pneumoconiosis (siderosis). Inhalation of high concentrations of ferric oxide may possibly enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

The inhalation of high concentrations of freshly formed oxide fumes and dusts of Manganese (Mn), Copper (Cu), and/or Lead (Pb), in the respirable particle size range can cause an influenza-like illness termed “metal fume fever.” Typical symptoms last 12 to 48 hours and are characterized by metallic taste in mouth, dryness and irritation of the throat, followed by weakness, muscle pain, fever and chills.

Inhalation or ingestion of Lead (Pb) particles may result in lead-induced systemic toxicity. Symptoms of lead poisoning include abdominal cramps, anemia, muscle weakness and headache. Prolonged exposures can cause behavioral changes, kidney damage, peripheral neuropathy characterized by decreased hand-grip strength and adverse human reproductive effects.

EMERGENCY AND “FIRST AID PROCEDURES: For over-exposure to airborne fumes and particulates, remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek medical attention promptly. Treat metal fumes fever by bed rest, and administer a pain and fever reducing medication. Workers who experience the symptoms of lead poisoning should be removed from exposure and receive medical care and guidance. Detailed biological testing and evaluation of possible exposure conditions are required to diagnose and control Lead poisoning. Restriction from exposure to Lead may be required.

7 – SPILL OR LEAK PROCEDURES

Not applicable to steel tubing in the solid state

8 – SPECIAL PROTECTION INFORMATION

Respiratory – NIOSH/IOSHA – approved dust and fume respirators should be used to avoid excessive inhalation of particulates. Appropriate respirator selection depends upon the magnitude of exposure.

Skin – Protective gloves should be worn as required for welding, burning, or handling operations.

Eye – Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding or machining operations.

Ventilation – Local exhaust ventilation should be provided when welding, burning, sawing, brazing, grinding or machining to prevent excessive dust or fume exposure.

Other – Provide clean coveralls or similar full-body protective clothing on a weekly basis to workers exposed to Lead (Pb) concentrations above levels of 0.05mg/M₃. Daily changes if exposures exceed 0.2 mg/M₃.



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Ingestion – Wash hands before eating or smoking to prevent ingestion of particulates.

9 – SPECIAL PRECAUTIONS

Precautions to be Taken in Handling and Storage: Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Avoid breathing metal fumes and/or dusts.

10 – OTHER COMMENTS

As part of the cold drawn tube manufacturing process, various lubricants and/or drawing compounds are used to reduce friction. Generally, such coatings are removed during the drawing or annealing operations and, in some cases, a surface residue may remain. Coatings, oils, and the like, can be applied to protect the finished product surface during shipment and storage. Protective gloves are recommended to minimize minor skin irritation, if any, resulting from contact with such coatings. A list of residual chemicals and suppliers is available upon request. Wash hands after handling oiled material.

IARC (Suppl. 1,29-39, 1979) has determined that there is sufficient evidence of increased lung cancer among workers in the chromate-producing industry and possible chromium alloy workers. This determination is supported by sufficient evidence for carcinogenicity to animals and possible mutagenicity testing of Cr VI compounds.

IARC (11,75-112, 1976) has determined that there is at least limited evidence that nickel and certain nickel compounds may be human carcinogens. Several nickel (Ni) compounds are carcinogenic to laboratory animals by various routes of exposure. Lead is a known or suspected carcinogen as listed by NTP, IARC or OSHA.

*SARA Section 313 – These chemicals are subject to Section 313 reporting.

** No ozone depleting chemicals are used in our manufacturing.

** Most steel grades are commonly lead free (non lead containing)

Steel is a recyclable product, dispose of according to local, state, and/or federal regulations.

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