



MATERIAL SAFETY DATA SHEET

SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

MATERIAL	REVISION DATE	Identification / Rev. Number
Carbon, Low Alloy, or Alloy Steel Tubing or Pipe	10/8/08	2008-10-08_PTCA_Rev7
MANUFACTURER'S NAME & ADDRESS	ENVIRONMENTAL, HEALTH, & SAFETY CONTACT PHONE NO.	
PTC Alliance Corp. Copperleaf Corporate Centre, Suite 200 6051 Wallace Rd. Ext. Wexford, PA 15090	24-HOUR CONTACT: CHEMTREC 1.800.424.9300 (if dialing from outside US, dial 703.527.3887)	
CHEMICAL FAMILY	FORM	
Metals	Mechanical, structural, cylinder, or redraw tubing or pipe	

SECTION 2: COMPOSITION / HAZARDOUS INGREDIENTS

MATERIAL OR COMPONENT	CAS NUMBER	CARBON STEEL (% Wt.)	LOW ALLOY STEEL (% Wt.)	ALLOY STEEL (% Wt.)	APPLICABLE EXPOSURE LIMITS	
					OSHA PEL ² (mg/m ³)	ACGIH TLV ³ (mg/m ³)
Base Metal						
Iron (Fe)	7439-89-6	Balance	Balance	Balance	10 as Fe ₂ O ₃ Fume	5.0 as Fe ₂ O ₃ Fume
Elements						
Aluminum (Al)*	7429-90-5	0.1 MAX	0.1 MAX	0.1 MAX	5 as Respirable	5.0 as Welding Fume
Carbon (C)	7440-44-0	0.45 MAX	0.45 MAX	1.2 MAX	None Listed	None Listed
Chromium (Cr)*	7440-47-3	0.2 MAX	0.5 - 1.6	20.0 MAX	1.0 as Chrome	0.5 as Chrome
Copper (Cu)*	7440-50-8	0.35 MAX	0.6 MAX	0.65 MAX	0.2 as Copper	1.0 as Dust
Manganese (Mn)*	7439-96-5	0.2 -1.7	0.2 - 1.7	0.2 -1.7	5 as Manganese (C)	5 as Dust; 1 as Fume 3 (C)
Molybdenum (Mo)	7439-98-7	0.1 MAX	0.65 MAX	3.5 MAX	15 as Insoluble Compd.	10 as Insoluble Compd.
Nickel (Ni)*	7440-02-0	0.25 MAX	0.7 MAX	14.0 MAX	1.0 as Nickel	1.0 as Nickel
Phosphorous (P)*	7723-14-0	0.035 MAX	0.04 MAX	0.04 MAX	0.1 as Phosphorous	0.1 as Phosphorous
Silicon (Si)	7440-21-3	1.0 MAX	1.0 MAX	1.0 MAX	5 as Respirable	10 as Total Dust
Sulfur (S)	7446-09-5	0.05 MAX	0.5 MAX	0.05 MAX	5.0 as Sulfur Dioxide	5.2 as Sulfur Dioxide
Tin (Sn)	7440-31-5	0.03 MAX	0.03 MAX	0.03 MAX	2.0 as Tin	2.0 as Tin
Vanadium (V)	1-314-62-1	0.15 MAX	0.15 MAX	0.25 MAX	0.5 as Dust; 0.1 Fume (C)	0.05 as Dust and Fume

- NOTES: (1) The above listing is a summary of elements commonly found in applicable steel grades. Various grades of steel may contain different combinations of these elements. Other trace elements, in minute quantities, may also be present.
- (2) OSHA Permissible Exposure Limits (PELs) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted. A ("C") designation denotes a ceiling limit, which should not be exceeded during any part of the working exposure unless otherwise noted.
- (3) Threshold Limit Values (TLVs) established by the American Conference of Governmental Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. A Short Term Exposure Limit (STEL) is defined as a 15-minute exposure, which should not be exceeded during any time during the workday.
- (4) * - SARA Title III Section 313 Chemical (See Section 15)
- (5) Optional – Light surface coating of rust preventative or UV-cured copolymer may be used. MSDS available upon request. Use gloves when handling to prevent skin irritation. Use adequate ventilation and / or appropriate personal protection when fumes or dust are generated.

SECTION 3: PHYSICAL DATA

PHYSICAL STATE	APPEARANCE AND ODOR	
Solid (at standard conditions)	Gray – Black & Odorless	
OTHER PHYSICAL DATA		
Boiling Point: NA Vapor Pressure: NA Solubility in H ₂ O: Insoluble	Specific Gravity: 7.5 to 8 % Volatile by Vol.: NA Evaporation Rate: NA	pH: NA Melting Point: 2400 – 2800 °F

SECTION 4: FIRE & EXPOSION DATA

FIRE AND EXPLOSION			
Flash Point (°F)	Auto Ignition Temperature (°F)	Flammable Limits in Air (%)	Extinguishing Media
NA	NA	Lower: NA Upper: NA	NA
Fire and Explosion Hazards		Extinguishing Media Not to be Used	
NONE		NA	
Note: Steel products in the solid state do not present a fire or explosion hazard. However, particulate generated during processing may present a dust explosion hazard.			

SECTION 5: REACTIVITY

REACTIVITY	
Stability	Incompatibility (Materials to Avoid)
<input checked="" type="checkbox"/> Stable <input type="checkbox"/> Unstable	Reacts with strong acids to form hydrogen gas
Conditions to Avoid	
Non-ventilated areas when cutting, welding, burning, or brazing; avoid generation of airborne dusts and fumes.	
Hazardous Decomposition Products	
Metallic oxides	

SECTION 6: ACCIDENTAL RELEASE MEASURES

SPILL OR LEAK PROCEDURES
Special Precautions: Use good housekeeping practices to prevent accumulation of dust and to keep airborne dust to a minimum. No CERCLA RQ specified for the product as a whole.

SECTION 7: PERSONAL PROTECTIVE EQUIPMENT

RESPIRATORY PROTECTION	PROTECTIVE CLOTHING
NIOSH Approved dust/mist/fume respirator should be used during welding or burning if OSHA PEL or TLV is exceeded.	Use appropriate protective clothing such as welder's aprons & gloves when welding or burning. Depending on use, check local, state, and federal codes.
EYES AND FACE	VENTILATION
Safety glasses should always be worn when grinding or cutting; face shields should be worn when welding or burning.	As per welding requirements. Depending on use, check local, state, and federal codes.

SECTION 8: EMERGENCY MEDICAL PROCEDURES

INHALATION	SKIN CONTACT
Remove to fresh air, if condition continues, consult physician.	If irritation develops, remove clothing and wash well with soap and water. If condition persists, seek medical attention.
EYE CONTACT	INGESTION
Immediately flush well with running water to remove particulate; seek medical attention.	If significant amounts of metal are ingested, seek medical attention.

SECTION 9: HEALTH/SAFETY INFORMATION

HEALTH
<ul style="list-style-type: none"> ▪ General: 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. ▪ Occupational Exposure Limits: Refer to Section 1. ▪ Major Exposure Hazard: Inhalation ▪ Overexposure Effects: <p>1. Acute: Excessive inhalation of metallic fumes and dusts may result in irritation of eyes, nose, and throat. High concentrations of oxide fumes and may result in metal fume fever. Typical symptoms consist of a metallic</p>

taste in the mouth, dryness and irritation of the throat, chill and fever and usually last from 12 to 48 hours.

2. Chronic: Chronic and prolonged inhalation of high concentrations of fumes or dust of the following elements may lead to:

- Iron (iron oxide) – Pulmonary effects, siderosis
- Manganese – bronchitis, pneumonitis, effect on central nervous system
- Chromium – Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract and possibly cancer of nasal passages and lungs. Based on available information, there does not appear to be evidence that exposure to welding fume induce human cancer.
- Nickel - Same as chromium
- Copper - Pulmonary effects
- Molybdenum – Pain in joints hands knees and feet.
- Aluminum – May initiate fibrotic changes to lung tissue
- Phosphorous – Necrosis of the mandible
- Sulfur – Edema of the lungs
- Tin – Cumulative systemic toxicity, central nervous system effects

CARCINOGENICITY NOTE: The International Agency for Research on Cancer (IARC), The National Toxicology Program (NTP), and OSHA do not list steel products as carcinogens. IARC identifies welding fumes as a Group 2B Carcinogen, a mixture that is possibly carcinogenic to humans.

SECTION 10: HANDLING & STORAGE

STORAGE TEMPERATURES

Stable under standard temperatures & pressures.

HANDLING / STORAGE PRECAUTIONS:

Store away from strong oxidizers. Dusts or powders may form explosive mixtures with air. Avoid breathing dusts or fumes.

SECTION 11: TOXIOLOGICAL PROPERTIES

ACUTE TOXICITY DATA	<i>LD₅₀ (mg/kg) – oral</i>
Iron (Fe)	No Data
Aluminum (Al)*	No Data
Carbon (C)	No Data
Chromium (Cr)*	No Data
Copper (Cu)*	No Data
Manganese (Mn)*	9,000 (rat)
Molybdenum (Mo)	No Data
Nickel (Ni)*	No Data
Phosphorous (P)*	No Data
Silicon (Si)	No Data
Sulfur (S)	No Data
Tin (Sn)	No Data
Vanadium (V)	10 (rat)

NOTE: No LD₅₀ has been established for the mixture as a whole. Source for Acute Toxicity Data Shown Above: NIOSH Chemical Listing and Documentation of Revised IDLH Values.

SECTION 12: ECOLOGICAL INFORMATION

ECOTOXICITY

No data available for the product as a whole. However, individual components of the product have been found to be toxic to the environment. Metal dusts have the potential migrate into soil and groundwater mediums if not managed properly.

ENVIRONMENTAL FATE

No data available on the product as a whole.

ENVIRONMENTAL DEGRADATION

No data available on the product as a whole.

SECTION 13: DISPOSAL / RECYCLING CONSIDERATIONS

WASTE MANAGEMENT METHODS

Product should be recycled whenever possible, in accordance with federal, state, and local regulations. Steel scrap, when recycled, is not regulated as a hazardous or solid waste under RCRA (40 CFR 261). If product dusts and/or fumes from processing operations are not recycled, they are considered to be a solid waste and may be classified as a hazardous waste depending on the toxicity characteristics of the dust as defined within 40 CFR 261.24.

SECTION 14: TRANSPORT INFORMATION

USDOT INFORMATION

This product is not listed as a USDOT Hazardous Material as defined within 49 CFR 172.101. However, ensure that material loads are prepared and secured in accordance with all applicable USDOT Regulations.

SECTION 15: REGULATORY INFORMATION

OSHA REGULATIONS

Air Contaminant (29 CFR 1910.1000, Table Z-1, Z-1-A: The product as a whole is not listed. However, individual components of the product are listed.

ENVIRONMENTAL REGULATIONS

- RCRA (40 CFR 261): Steel scrap, when recycled, is not regulated as a hazardous or solid waste under RCRA. If product dusts and/or fumes from processing operations are not recycled, they are considered to be a solid waste and may be classified as a hazardous waste depending on the toxicity characteristics of the dust as defined within 40 CFR 261.24.
- CERCLA (40 CFR 302.4): No CERCLA RQ specified for the product as a whole.
- SARA 313 (40 CFR 372.65): Potential SARA Title III Section 313 Chemicals are denoted by an asterisk (*) in Section I. Please note that if you prepackage or redistribute this product to industrial customers, SARA 313 may require a notice be sent to these customers.

NOTE: Information listed above is intended for use as guidance only and should not be solely relied upon for all regulatory compliance obligations / responsibilities. Neither state nor foreign regulations are addressed within the information listed above.

SECTION 16: ADDITIONAL INFORMATION

MATERIAL CERTIFICATION

- European Union Directive 2002/95/EC, Restriction of Hazardous Substances (RoHS)
- European Union Directive 2000/53/EC, End-of-Life Vehicles (ELV)
- GADSL, no declarable substances within supplied components at vehicle point-of-sale
- Free of mercury contamination and / or mercury compounds*

**As defined by GADSL V1.0 2005-01-25 and RoHS Directive (2002/95/EC)*

DISCLAIMER

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