



MATERIAL SAFETY DATA SHEET

SECTION I

PRODUCTS: Steel framing components, accessories, and plaster construction products.

CHEMICAL FAMILY: Steel

SECTION II

INGREDIENTS

MATERIALS	PERCENT	TLV mg ³ /M	PEL mg/M ³	CAS NO.
Chromium	0.01-12	0.5 as Cr	1.0 as Cr	7440-47-3
Cobalt	8.0 Maximum	0.05 as fume	0.1 as Co	7440-78-4
Copper	0.04-0.7	0.2 as fume	0.2 as Cu	7440-50-8
Lead	0.15-0.35	0.15 as dust and fume	0.05	7439-92-1
Manganese	0.05-2.0	5 as dust, 1 as fume	5 ceiling	7439-96-5
Molybdenum	0.01-1.1	5 as solid compounds	5 as solid compounds	7439-98-7
Nickel	0.01-10	1 as Ni	1 as Ni	7440-02-0
Zinc	0.10-5	5 as fume, 10 as dust	5 as fume	7440-66-6
Iron	Balance	5 as fume	10 as fume	7439-89-6

1. The above listing is a summary of elements used in alloying steel. Various grades of steel will contain different combinations of these elements and may also be present in minute amounts.
2. ACGIH recommends a TLV for welding fume of 5 mg/M³ in addition to any other applicable TLV. If wearing a welding helmet, a welder is unlikely to exceed this.

Steel Construction Systems
11250 Astronaut Blvd.
Orlando, FL 32837
Telephone (800) 548-8499
Fax (407) 438-1667

SECTION III

PHYSICAL DATA

Boiling point:	NA ³	Melting point:	2750 degrees F (Iron)
Vapor pressure:	NA	Vapor density: (Air = 1)	NA
Solubility in water:	NA	Specific gravity (H2O = 1):	7
Volatile by Volume (%)	NA	Evaporation rate (H2O = 1):	NA

Appearance and odor: Gray-black with metallic luster. Odorless

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Boiling point of zinc (in galvanized steel) is 1665 degrees F.

SECTION IV

FIRE AND EXPLOSION ON HAZARD DATA

Flash Point (Method used):	None
Special fire fighting procedures:	NA
Unusual fire and explosion hazards:	NA
Flammable Limits:	NA
Extinguishing media:	NA

SECTION V

HEALTH HAZARD DATA

Steel products in the natural state do not present an inhalation, ingestion, or contact health hazard. However, operations such as welding, "burning", brazing, and , to a lesser extent, sawing, grinding, and possibly machining, which result in elevating the temperature of the product to or above its melting point, can result in the generation of airborne respirable particles which may present hazards. These operations should be performed in well-ventilated areas. The major exposure hazard is inhalation, especially of welding fumes.

Effects of overexposure:

Acute: Excessive inhalation of metallic fume and dusts may result in irritation of eyes, nose, and throat. Also, high concentrations of fumes and dusts of iron oxide, manganese, copper, zinc, and lead 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 lasts from twelve (12) to forty-eight (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 effect, siderosis.
Chromium	Various forms of dermatitis, inflammation and/or ulceration of upper respiratory tract, and possible cancer of nasal passages and lungs. Based on available information, there does not appear to be any evidence that exposure to welding fume induced human cancer.
Nickel	Same as chromium.
Copper	Pulmonary effects.
Vanadium	No reported cases of exposure to vanadium.
Cobalt	Inhalation of cobalt dust may cause an asthma-like disease with cough and dyspnea.
Molybdenum	Pain in joints, hands, knees, and feet.
Tungsten	Some evidence of pulmonary involvement such as cough.
Lead	Prolonged exposures can cause behavioral changes, kidney damage, periphery neuropathy characterized by decrease handgrip strength and adverse reproductive effect.
Zinc	None reported.

Target organ: Lungs.

Medical condition which may be aggravated: Pre-existing upper respiratory and lung disease such as, but not limited to, bronchitis, emphysema and asthma.

Primary route of entry: Inhalation.

Emergency and First Aid Procedures:

- Eyes: Immediately flush well with running water to remove particles. ***GET MEDICAL ATTENTION.***
- Skin: If irritation develops, remove clothing and wash well with soap and water. If irritation persists, ***SEEK MEDICAL ATTENTION.***
- Inhalation: Remove to fresh air. If condition continues, consult physician.
- Ingestion: If significant amounts of metal are ingested, ***SEEK MEDICAL ATTENTION.***

SECTION VI

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REACTIVITY DATA

Stability: Stable
Conditions to avoid: Non-ventilated areas when cutting, welding, burning or brazing. Avoid generation of airborne dusts and fumes.
Incompatibility: Reacts with strong acids to form hydrogen gas.
Hazardous Decomposition
Products: Metallic oxides.
Hazardous Polymerization: Will not occur.

SECTION VII

SPILL OF LEAK PROCEDURES

Steps to be taken in case material is released or spilled: NA
Waste disposal method: Dust, etc., follow federal, state and local regulations regarding disposal.

SECTION VIII

SPECIAL PROTECTION INFORMATION

Respiratory Protection: When engineering controls are not sufficient to lower exposure levels below the applicable exposure limit, use a NIOSH approved respirator for dusts and metal fume within the use limits of the respirator.
Ventilation: General mechanical and local exhaust if needed.
Protective Equipment: Safety glasses should always be worn when grinding or cutting. Face shields should be worn when welding or burning. Wear gloves when handling.

SECTION IX

SPECIAL PRECAUTIONS

Precautions to be taken in handling and storing: Store in a dry place and on a level surface.

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□