GS METALS

GS Metals Corp.

MATERIAL SAFETY DATA SHEET

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I. PRODUCT IDENTIFICATION

Product Name:
- Formed Steel Products
- Mill-Galvanized
- Hot-Rolled, Pickled & Oiled
- Painted
- Stainless Steel

Synonyms/Trade Names:
- GRIP STRUT® Safety Grating, Ladder Rungs, Stair Treads
- Heavy Duty GRIP STRUT® Grating
- GLOBE STRUT® Metal Framing
- GLOBETRAY® Cable Tray
- GRATE-LOCK® Grating
- PERF-O GRIP® Grating, Stair Treads
- LAMBDA-LOK® Solid Mezzanine
- TRACTION TREAD™ Flooring, Ladder Rungs
- FLEXTRAY® Cable Management System
- GRIP WALK® Rooftop Walkway System
- GRATE WALK® Rooftop Walkway System

II. INGREDIENTS AND RECOMMENDED OCCUPATIONAL EXPOSURE LIMITS

Base Metal, Alloying Elements & Metallic Coatings	Composition By Weight (Percent)	CAS#	OSHA PEL (mg/M)	ACGIM TLV (mg/M)
Base Metal: Iron (Fe)	Balance	7429-89-6	10.0 (for iron oxide fume)	5.0 (for iron oxide fume)
Alloying Elements				
Carbon (C)	3.0 max.	7440-44-0	None Established	None Established
Chromium (Cr)	20.0 max.	7440-47-3	1.0 as chrome	0.5 as chrome
Manganese (Mn)	2.0 max.	7439-96-5	5.0 as manganese	5.0 as dust: 1.0 as fume
Molybdenum (Mo)	1.1 max.	7439-98-7	15.0 as insoluble compounds	10.0 as insoluble compounds
Nickel (Ni)	14.0 max.	7440-02-0	1.0 as nickel	1.0 as nickel
Phosphorus (P)	0.15 max.	7723-14-0	0.1 as phosphorus	0.1 as phosphorous
Silicon (Si)	2.2 max.	7440-21-3	None Established	10.0 as dust
Sulfur (S)	0.35 max.	7404-34-9	13.0 as sulfur dioxide	5.0 as sulfur dioxide
Tungsten (W)	8.0 max.	7440-33-7	None Established	5.0 as insoluble compounds
Coatings:				
Zinc (Zn)	30.0 max.	7440-66-6	5.0 as fume	5.0 as reparable Zn0 dust/fume
Aluminum (Al)	20.0 max.	7429-90-5	None Established	10.0
Tin (Sn)	1.0 max.	7440-31-5	None Established	2.0 as tin oxide

Note: A paint coating would not normally exceed 3.0% of the total product by weight. However, when burning, welding, etc. on this product, ensure that employees are protected from air contaminants that might be generated from the vaporization of heavy metals in the coating.

Note: There is also a thin coating of a rust preventative oil or wax (less than 1.0%) that is added to the surface of the coil, strip or product as a corrosion inhibitor or preventative.

Note: All commercial metals contain small amounts of various elements in addition to those specified. These small quantities, often referred to as "trace" or "residual" elements, generally originate in the raw materials used. Although levels of commonly involved trace or residual elements are small, they should be considered so that their potential hazards may be considered.

III. PHYSICAL DATA

Melting Point: Greater than 2700 degrees F
Specific Gravity (H_2O =1): Greater than 7

Solubility in Water: Negligible
Percent Volatile by Volume: N/A

Boiling Point: N/A
Vapor Pressure: N/A
Vapor Density (Air=1): N/A
Evaporative Rate: N/A
pH Information: N/A

IV. FIRE AND EXPLOSION HAZARD DATA

Note: Steel products in the solid state present no fire or explosion hazard.

Flash Point (degrees F): N/A
Flammable Limits: N/A
Extinguishing Media: Use methods applicable to surrounding area.
Special Fire Fighting Procedures: Use self-contained breathing apparatus for protection against degradation products and fire fighting technique or agent(s) applicable to surrounding materials.

V. REACTIVITY DATA

Stable under normal conditions of use, storage and transport. Will react with strong acid to liberate hydrogen. At temperatures above the melting point, steel may liberate fumes containing oxides of iron and alloying elements. Above the melting point of the coating, zinc or other fumes may be liberated.

VI. HEALTH HAZARD DATA

Note: Steel products under normal conditions do not present an inhalation, ingestion or contact hazard. However, operation, such as burning, welding, sawing, brazing, grinding, and possible machining, etc. which results in elevating the temperature of the product at or above its melting point, or results in the generation of airborne particulates, may present health hazards. Heat only in the presence of adequate ventilation.

Note: No Threshold Limit Value (TLV) or Permissible Exposure Limit (PEL) exists for steel. See section II for listing of the individual constituents.

Major Exposure Hazard: Inhalation
Other Exposure Hazard: Skin contact, eye contact, ingestion

Effects of Overexposure

General:

Chronic inhalation of high concentrations of iron oxide fumes or dusts may lead to benign pneumoconiosis (siderosis).

The inhalation of high concentrations of freshly formed oxide fumes and dusts of manganese, copper, lead and/or zinc 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 a metallic taste in the mouth, dryness and irritation of the throat, followed by weakness, muscle pain, fever and chills.

Specific:

Inhalation:

Iron: Siderosis, no fibrosis
Oil mist: Pulmonary effects
Note: Some constituents pose more potential hazards than others, depending upon their inherent toxicity and concentration. Of special concern are iron, and perhaps the paint (or coating) constituents, and oil mist.

Skin Contact:

May cause irritation. Oil mist may cause dermatitis.

Eye Contact:

May cause irritation.

Ingestion:

May cause irritation of the mouth and throat.

Chemical:

Base Material:

Iron: Pulmonary effect, siderosis
Manganese: Bronchitis, pneumonitis, lack of coordination.
Phosphorous: Necrosis of the mandible.
Sulfur: Edema of the lungs.
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 fumes induces human cancer.
Aluminum: May initiate fibrous changes to lung tissue.

Coatings:

Zinc: Chromosomal anomalies in leukocytes reported. Arthritis, lameness and inflammation of the gastrointestinal tract reported from animal studies.

EMERGENCY AND FIRST AID PROCEDURES:

Precaution:

To avoid the opportunity for adverse effects and/or exposure it is recommended that appropriate safety equipment be used whenever handling this material. Avoid breathing fumes or dust directly.

Inhalation:

For overexposure to airborne fumes and particulate, remove exposed person to fresh air. If breathing is difficult or has stopped, administer first aid in accordance with the American Red Cross First Aid Manual or other approved guideline. Seek medical attention as necessary.

Skin contact:

If irritation develops, remove clothing immediately, wash contaminated skin with soap or mild detergent and water for at least five minutes. Launder contaminated clothing before wearing. If irritation persists, seek medical attention as necessary.

Eye contact:

In case of eye contact, immediately wash eyes with large amounts of water for at least fifteen minutes, occasionally lifting the lower and upper lids. Seek medical attention as necessary.

Ingestion:

Seek medical attention as necessary.

VII. SPILL OR LEAK PROCEDURES

NOT APPLICABLE TO STEEL IN THE SOLID STATE.

Note: Use good housekeeping practices to prevent the accumulation of dust and to keep airborne particles to a minimum. Any cutting or forming oils should be contained within the designated working area to minimize splatter and/or spillage.

VIII. SPECIAL PROTECTION INFORMATION

Respiratory: NIOSH/OSHA-approved dust and fume respirators should be used to avoid excessive inhalation of particulates, when appropriate. Respirator selection depends on the magnitude and type of exposure.

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

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

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

Other Protective Equipment: Depending upon the conditions of use and specific work situations, additional protective equipment and/or clothing may be required to control exposure.

Other Information: If operations are such that atmospheric levels of contaminants exceed prescribed limits, provided local exhaust ventilation and/or adequate respiratory protection. Consult your regional codes or code of Federal Regulation, Title 29, Part 1910.252, Welding, Cutting and Brazing, 1910.134, Respiratory Protection, and 1910-Subpart Z, Toxic Hazardous Substances.

IX. SPECIAL PRECAUTIONS

Steel products are extremely hard and may contain sharp burrs-appropriate safety precautions and protective equipment should be worn when handling.

During welding, precautions should be taken for airborne contaminants and noxious gases that may originate form the welding process or from components of the welding rod. Of special concern are silica or silicates, of both: fluorides; copper; manganese; carbon monoxide and nitrogen oxides. Arc and sparks generated when welding with this product could be a source of ignition for combustion and flammable materials.

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Revision History
January 15, 1992 – Original release
July 14, 2004 – Updated trade name listing and made minor format changes