MSDS Sheets for TrusSteel Products

Purpose of this Bulletin

The purpose of this Bulletin is to provide TrusSteel fabricators with a Material Safety Data Sheets for TrusSteel and affiliated products.

Information

See the attached MSDS sheets:

- TrusSteel MSDS sheet,
- Olympic Fastener MSDS sheet.

Application

Each TrusSteel fabricator shall keep these documents in their office and shop, and post and distribute them as instructed per local, state, and federal regulations.

Glossary of MSDS Terms

ACUTE: An adverse effect on the human body with symptoms of high severity coming quickly to a crisis.

ASPHYXIANT: A gas or vapor which can take up space in the air and reduce the concentration of oxygen available in the body. Examples include acetylene, methane, and carbon dioxide. Asphyxiants are of special concern in confined spaces.

BOILING POINT: Temperature at which a liquid changes to a vapor state at a given pressure (usually sea level pressure = 760 mmHg). Mixtures may have a boiling range. Flammable materials with low boiling points usually present special fire hazards.

"C" OR CEILING: The maximum allowable human exposure limit for an airborne substance; not to be exceeded even momentarily. Examples: hydrogen chloride, chlorine, nitrogen dioxide, and some isocyanates have ceiling standards.

CARCINOGEN: A substance that causes cancer.

CC: Cubic centimeter; a volume measurement in the metric system, equal in capacity to one milliliter (ml).

CEILING LIMIT: The maximum amount of a toxic substance allowed to be in workroom air at any time during the day.

CHRONIC EFFECT: An adverse effect on a human or animal body with symptoms which develop slowly or over a long period of time or which recur frequently. The harmful effects resulting from asbestos and silica are considered "chronic effects."

CHRONIC TOXICITY: Adverse (chronic) effects resulting from repeated doses of or exposures to a substance over a relatively prolonged period of time. Ordinarily used to denote effects in experimental animals.

COMBUSTIBLE LIQUID: Any liquid having a flash point at or above 100F (37.8C), but below 200F (93.3C), except any mixture having components with flash points of 200F (93.3C) or higher, the total volume of which make up 99 per cent or more of the total volume of the mixture.

COMMON NAME: Any designation or identification such as code name, code number, trade name, brand name, or generic name used to identify a chemical other than by its chemical name.

CORROSIVE: A liquid or solid that causes visible destruction in skin tissue at the site on contact.

CUTANEOUS HAZARDS: Chemicals which affect the dermal (skin) layer of the body. Signs and symptoms are defatting of the skin, rashes, irritation.

DECOMPOSITION: Breakdown of a material or substance (by heat, chemical reaction, electrolysis, decay, or other processes) into simpler compounds.

DECOMPOSITION PRODUCTS: Describes the hazardous materials produced during heated operations.

DENSITY: The mass of a substance per unit volume. The density of a substance is usually compared to water, which has a density of 1. Substances which float on water have densities less than 1; substances which sink have densities greater than 1.

DERMAL: Used on or applied to the skin.

DERMAL TOXICITY: Adverse effects resulting from skin exposure to a substance. Ordinarily said to denote effects in experimental animals.

DERMATITIS: Inflammation of the skin.

EHS: Environmental Health and Safety office.

EVAPORATION RATE: The rate at which a product will vaporize when compared to the rate of vaporization of a known material (usually Butyl Acetate with rate designated as 1.0). Evaporation rate can be useful in evaluation of health and fire hazards of a material. Rates are classified as fast (greater than 3.0), medium (0.8 to 3.0), and slow (less than 0.9). Evaporation rate of water is 0.3.

EXPLOSIVE: A chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

EXPLOSIVE LIMITS: The lowest concentration of a combustible or flammable gas or vapor in air that will produce a flash of fire. Mixtures below this concentration are too "lean" to burn.

EXPOSURE: A person's contact with a hazardous chemical in the course of employment through any route of entry (inhalation, ingestion, skin contact or absorption, etc.).

EXTINGUISHING MEDIA: Specifies the fire-fighting agents that should be used to extinguish fires.

FLAMMABLE: Flammable limits describe the range of concentrations of a flammable gas or vapor in air that will produce a flash of fire in the presence of an ignition source. A "flammable liquid" is a solution with a flash point below 100F (37.8C).

FLASH POINT: The temperature at which a liquid will give off enough flammable vapor to ignite. The lower the flash point, the more dangerous the product. A "flammable liquid" is a solution with a flash point below 100F (37.8C). Flash

point values are most important when dealing with hydrocarbon solvents. The flash point of a material may vary depending on the method used, so the test method is indicated when the flash point is given.

FORESEEABLE EMERGENCY: Any potential occurrence such as, but not limited to, equipment failure, rupture of containers, or failure of control equipment which could result in an uncontrolled release of hazardous chemical into the workplace.

HAZARDOUS MATERIAL: In a broad sense, any substance or mixture of substances having properties capable of producing adverse effects on the health or safety or a human being.

HAZARD RATINGS: Material ratings of one to four which indicate the severity of hazard with respect to health, flammability, and reactivity.

HAZARD WARNING: Any words, picture, symbols, or combination thereof appearing on a label or other appropriate form of warning which conveys the hazards of the chemical(s) in the container(s).

HEALTH HAZARD: A chemical for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles, that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

HEPATOTOXINS: Chemicals that produce liver damage.

HVAC: Heating, ventilation and air conditioning.

IGNITABLE: Capable of being set on fire.

INCOMPATIBLE: Materials that could cause dangerous reactions from direct contact with one another. These types of chemicals should never be stored together.

INGESTION: The taking in of a substance through the mouth.

INHALATION: The breathing in of a substance in the form of a gas, vapor, fume, mist, or dust.

IRRITANT: A substance that by contact in sufficient concentration for a sufficient period of time, will cause an inflammatory response or reaction of the eye, skin, or respiratory system. The contact may be a single exposure or multiple exposures.

LC: Lethal Concentration; a concentration of a substance being tested that will kill a test animal.

LETHAL CONCENTRATION 50 (LC50): The concentration of a material in air which on the basis of laboratory tests is expected to kill 50 per cent of a group of test animals when administered as a single exposure (usually 1 to 4 hours).

LD: Lethal Dose; a concentration of a substance being tested that will kill a test animal.

LETHAL DOSE 50 (LD50): A single dose of chemical which on the basis of laboratory tests is expected to kill 50 per cent of a group of test animals. The LD50 dose is usually expressed as milligrams or grams of chemical per kilogram of animal body weight (mg/kg or g/kg).

MELTING POINT: The temperature at which a solid substance changes to a liquid state. For mixtures, the melting range may be given.

MIXTURE: Any combination or two or more chemicals if the combination is not in whole or in part the result of a chemical reaction.

MUTAGEN: Any substance able to induce mutations in DNA and living cells.

NARCOSIS: Stupor or unconsciousness produced by a chemical.

NEPHROTOXINS: Chemicals that produce kidney damage.

NEUROTOXINS: Chemicals that produce their primary toxic effects on the nervous system.

OCCUPATIONAL EXPOSURE LIMITS: Maximum allowable concentrations of toxic substances in workroom air to protect workers who are exposed to toxic substances over a working lifetime.

ORAL TOXICITY: Adverse effects resulting from taking a substance into the body via the mouth. Ordinarily used to denote effects in experimental animals.

OXIDIZER: A chemical other than a blasting agent or explosive that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

PERMISSIBLE EXPOSURE LIMITS (PEL's): PEL's are OSHA's legal exposure limits.

pH: A number that describes the acidity of alkalinity or an aqueous solution.

PHYSICAL HAZARD: A chemical for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

POLYMERIZATION: A chemical reaction in which one or more small molecules combine to form larger molecules at a rate which releases large amounts of energy. If hazardous polymerization can occur with a given material, the MSDS usually will list conditions which could start the reaction; and since the material in most cases contains a polymerization inhibitor, it is usually used up, and no longer capable of preventing a reaction.

PPM (Parts Per Million): Parts of vapor or gas per million parts of contaminated air by volume.

PPB (Parts Per Billion): Parts of vapor or gas per billion parts of contaminated air by volume.

PPE: Personal Protective Equipment.

REACTIVITY: A description of the tendency of a substance to undergo chemical reaction with the release of energy. Undesirable effects such as pressure build-up, temperature increase, formation of noxious, toxic or corrosive byproducts may occur because of the reactivity of a substance by heating, burning, direct contact with other materials, or other conditions in use or in storage.

SENSITIZER: A substance which on first exposure causes little or no reaction but which on repeated exposure may cause a marked response not necessarily limited to the contact site. Skin sensitization is the most common form of sensitization in the industrial setting, although respiratory sensitization to a few chemicals is also known to occur.

SHIPPING INFORMATION: The appropriate name(s), hazard class(es), and identification number(s) as determined by the United States Department of Transportation, International Regulations, and the International Civil Aviation Organization.

SOLUBILITY: The extent to which a substance mixes with a liquid to produce a solution.

SOLVENT: Usually a liquid in which other substances are dissolved. The most common solvent is water.

SPECIFIC GRAVITY: The ratio of the weight of a given volume of any substance to the weight of an equal volume of water.

STABILITY: An expression of the ability of a material to remain unchanged under expected and reasonable conditions of storage and use.

TERATOGEN: Any substance that causes growth abnormalities in embryos, genetic modifications in cells, etc.

THRESHOLD LIMIT VALUES (TLV's): Expresses the airborne concentration of a material to which nearly all persons can be exposed day after day without adverse effects. TLV's are expressed three ways:

1. TLV-TWA: The allowable Time Weighted Average concentration for a normal 8-hour workday (40-hour work week).
2. TLV-STEL: The short-term exposure limit or maximum concentration for a continuous 15-minute exposure period (maximum of four such periods per day, with at least 60 minutes between exposure periods) and provided the TLV-TWA is not exceeded.
3. TLV-C: The ceiling exposure limit is the concentration that should never be exceeded, even instantaneously.

TOXICITY: The sum of adverse effects resulting from exposure to a material, generally by the mouth, skin, or respiratory tract.

TWA (Time Weighted Average exposure): The airborne concentration of a material to which a person is exposed, averaged the total exposure time; generally the total workday (8 to 12 hours).

VAPOR DENSITY: The density of a material's vapor, compared to the density of the air. If a vapor density is greater than one, it is denser than air and it will drop to the floor or the lowest point available. If the density is less than one, it is lighter than air and will float upwards like helium.

VAPOR PRESSURE: The pressure exerted at a given temperature of a vapor in equilibrium with its liquid or solid. The higher the vapor pressure, the more easily a liquid will evaporate. Liquid materials that evaporate easily are termed volatile, and this means that air concentrations can build up quickly when working with the material in liquid form. Materials with high vapor pressures may be particularly hazardous if you are working in enclosed or confined areas, or if the air circulation is poor. Note: Materials with lower vapor pressure still may pose an inhalation hazard.

WATER REACTIVE: A chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Included Documents

MSDS sheets.

Revisions

- This bulletin was revised on 1/10/02.

Material Safety Data Sheet

ITW Building Components Group, Inc.
1100 Park Central Blvd., South
Pompano Beach, FL 33061

Phone: 954-781-3335
Date Issued: 5/1/2007

SECTION I

PRODUCTS: Galvanized carbon steel shapes used for making steel trusses.
CHEMICAL FAMILY: Steel

SECTION II

Ingredients

Material	**%**	**TLV mg/M^3**	**OSHA PEL mg/M^3**
Base Metal: Iron	Balance	5 - as iron oxide fumes	15 - as total particulate as iron oxide-total dust 5 - as total particulate-respirable fraction
Alloying Elements:			
Carbon	0.10 max	None established	None established
Chromium	0.01-12	0.5 – as metal	1 – as metal
Cobalt	8.0 max.	0.05 as fume	0.1 as Co
Copper	0.04-0.7	0.2 as fume	0.2 – as metal
Lead	0.15-0.35	0.15 as dust and fume	0.05 – as metal
Manganese	0.050-2.00	5 – as dust & compounds 1 – as fumes (2) 3 - as fumes	(1) 5 – as compounds (2) 3 – as fume 1 - as fume
Molybdenum	0.01-1.1	5 - as sol. compounds	5 as sol. compounds
Nickel	0.01-10	1 – as metal	1 – as metal
Phosphorus	0.04 max	None for organic phosphates	None for organic phosphates
Sulfur	0.05 max	5.2 - as sulfur dioxide (2) 13 - as sulfur dioxide	5 - as sulfur dioxide (2) 10 - as sulfur dioxide
Metallic Coating:			
Zinc (5) CAS NO. 7440-68-6	0.5-3.00	10 – as zinc oxide total dust 5 – as zinc oxide fume (2) 10 – as zinc oxide fume	5 – as zinc oxide fume (2) 10 – as zinc oxide fume 10 – as zinc oxide dust 5 – as zinc oxide respirable fraction
Aluminum (5) CAS NO.7429-90-S	< 0.1	10 – as dust 5 – as welding fumes (4)	15 – as metal dust 5 – as respirable fraction
Chromium	< 0.0005	0.5 – as metal	1 – as metal
Polymeric Coatings	< 0.05	N/A	N/A

1. Denotes short-term exposure limit (STEL).
2. Denotes "ceiling limit" which is not to be exceeded at any time.
3. 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.
4. ACGIH recommends a TLV for welding fume of 5 mg/M^3, in addition to any other applicable TLV. If wearing a welding helmet, a welder is unlikely to exceed this.
5. Subject to EPA Section 313 reporting.

Material Safety Data Sheet

SECTION III

Physical Data

BOILING POINT:	NA[3]	MELTING POINT: Base metal [4]	2750^{O}F (Iron)
VAPOR PRESSURE:	NA	VAPOR DENSITY (Air = 1):	NA
SOLUBILITY IN WATER:	NA	SPECIFIC GRAVITY (H_2O = 1):	7
VOLATILE BY VOLUME:	NA	EVAPORATION RATE (H_20 = 1):	NA
APPEARANCE AND ODOR:	Gray-black or bright metallic with metallic luster. Odorless		

[3] Boiling point of zinc (in galvanized steel) is 1665^{O}F.
[4] Melting point of metallic coating: 800-900 ^{O}F

SECTION IV

Fire and Explosion Hazard Data

FLASH POINT (Method Used):	None
SPECIAL FIRE FIGHTING PROCEDURES:	NA
UNUSUAL FIRE AND EXPLOSION HAZARDS	None
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 fumes 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 12 to 48 hours.
CHRONIC:	Chronic 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 effects, siderosis.
Chromium:	Various forms of dermatitis, inflammation and /or ulceration of upper respiratory tract, or 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.
Zinc:	None reported.

TARGET ORGAN:	Lungs
MEDICAL CONDITION WHICH MAY BE AGGREVATED:	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 condition persists, seek medical attention.
Inhalation:
Remove to fresh air; if condition persists, consult physician.
Ingestion:
If significant amounts of metal are ingested, SEEK MEDICAL ATTENTION.

SECTION VI

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 or 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 VII

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 fumes within the use limits of the respirator.
VENTILATION:	General mechanical and local exhaust, if needed. When welding, burning or brazing please follow the ANSI standard Z49.1 “Safety in Welding and Cutting”.
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 VIII

Special Precautions

PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING:	Store in a dry place and on a level surface.

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