

Material Safety Data Sheet

Galvanized (Hot Dipped) Sheet – Carbon Steel

1. Product and company identification

Common name	: Galvanized (Hot Dipped) Sheet – Carbon Steel	
Material uses	: Utilized in steel framing components and accessories.	
Supplier/Manufacturer	: Metal Resources Inc 201 Mississippi St, Gary, IN 46402 Phone: 630-616-1850 Fax: 630-568-5979 www.mristeel framing.com	
In case of emergency	: 630-616-1850	
MSDS authored by:	: Kemika XXI Inc. + 1-450-435-7475	12/30/2005

2. Hazards identification

Physical state	: Solid.
Odor	: Odorless.
Color	: Metallic gray.
Hazard status	: This material is classified hazardous under OSHA regulations in the United States and the WHMIS Controlled Product Regulation in Canada.
Emergency overview	: WARNING ! MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LUNGS, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM. When product is subjected to welding, burning, melting, sawing, brazing, grinding, or other similar processes, potentially hazardous airborne particulate and fumes may be generated. Avoid inhalation of metal dusts and fumes. Operations having the potential to generate airborne particulates should be performed in well ventilated areas and, if appropriate, respiratory protection and other personal protective equipment should be used.
Routes of entry	: Dermal contact. Eye contact. Inhalation. Ingestion.
Potential acute health effects	
Eyes	: May cause eye irritation. Particles of iron or iron compounds, which become imbedded in the eye, may cause rust stains unless removed fairly promptly.
Skin	: May cause skin irritation upon contact. May cause sensitization by skin contact.
Inhalation	: May cause respiratory tract irritation. Excessive inhalation of fumes of freshly formed metal oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns from many metals can produce an acute reaction known as "metal fume fever".
Ingestion	: Ingestion of dust may cause nausea and/or vomiting.
Potential chronic health effects	: Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH. Mutagenic effects: Not available. Teratogenic effects: Not available.
Medical conditions aggravated by over-exposure	: Repeated or prolonged contact with chemical surface treatments or oil residue may cause skin irritation, dermatitis, ulceration or allergic reactions in sensitized individuals. Long-term inhalation exposure to high concentrations (over-exposure) to pneumoconiotic agents may act synergistically with inhalation of oxides, fumes or dusts of this product to cause toxic effects. Repeated or prolonged exposure to the substance can produce target organ damage.

See toxicological information (section 11)

3. Composition/information on ingredients

United States

Name	CAS number	%
Iron	7439-89-6	70 - 100
Zinc	7440-66-6	3 - 5
Manganese	7439-96-5	1 - 3

Canada

Name	CAS number	%
Iron	7439-89-6	70 - 100
Zinc	7440-66-6	3 - 5
Manganese	7439-96-5	1 - 3

4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. In case of contact with eyes, rinse immediately with plenty of water. Get medical attention if symptoms occur.
- Skin contact** : Wash with soap and water. Get medical attention if symptoms occur.
- Inhalation** : For over-exposure to airborne fumes and particulate, remove exposed person to fresh air. If inhaled, remove to fresh air. If not breathing, give artificial respiration. Get medical attention if symptoms appear. Metal fume fever may be treated by bed rest, and administering a pain and fever reducing medication.
- Ingestion** : Not a probable route of industrial exposure.
- Notes to physician** : No specific antidote. Medical staff must contact Poison Control Center.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training.

5 . Fire-fighting measures

- Flammability of the product** : Non-flammable.
- Products of combustion** : At temperatures above the melting point, fumes containing metal oxides and other alloying elements may be liberated. The acrylic resin in the coating may yield particulates which are irritating to the eyes and respiratory tract and noxious gases such as the oxides of carbon.
- Extinguishing media**
 - Suitable** : Use an extinguishing agent suitable for the surrounding fire.
 - Not suitable** : Do not use water on molten metal.
- Special exposure hazards** : No specific hazard.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

6 . Accidental release measures

- Personal precautions** : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment.
- Environmental precautions** : Avoid dispersal of spilled material, runoff and contact with soil, waterways, drains and sewers. Collect material in appropriate, labeled containers for recovery or disposal in accordance with federal, state, and local regulations.
- Methods for cleaning up** : For spills involving finely divided particles, clean-up personnel should be protected against contact with eyes and skin. If material is in a dry state, avoid inhalation of dust. Fine, dry material should be removed by vacuuming or wet sweeping methods to prevent spreading of dust. Avoid using compressed air. Avoid creating dusty conditions and prevent wind dispersal.

7 . Handling and storage

- Handling** : Operations with the potential for generating high concentrations of airborne particulates should be evaluated and controlled as necessary. Avoid breathing metal fumes and/or dust.
- Storage** : Store away from acids and incompatible materials.

8 . Exposure controls/personal protection

United States	
Product name	Exposure limits
Iron	ACGIH TLV (United States). TWA: 10 mg/m ³ 8 hour(s). Form: Inhalable particle.
Zinc	ACGIH (United States). TLV: 5 mg/m ³ Form: Dust OSHA (United States). PEL: 5 mg/m ³ Form: Dust
Manganese	ACGIH TLV (United States, 1/2005). TWA: 0.2 mg/m ³ 8 hour(s). Form: All forms.

OSHA PEL (United States, 8/1997).

 CEIL: 5 mg/m³ Form: Fume

Canada
Product name

Iron

Zinc

Manganese

Exposure limits
ACGIH TLV (Canada).

 TWA: 10 mg/m³ 8 hour(s). Form: Inhalable particle.

ACGIH TLV (Canada).

 TLV: 5 mg/m³ Form: Dust

ACGIH TLV (Canada, 1/2005).

 TWA: 0.2 mg/m³ 8 hour(s). Form: All forms.

Engineering measures

: No special ventilation requirements. Good general ventilation should be sufficient to control airborne levels. If this product contains ingredients with exposure limits, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure below any recommended or statutory limits.

Personal protection
Eyes

: Safety glasses.

Skin

: Lab coat.

Respiratory

: Follow OSHA respirator regulations (29 CFR 1910.134) and, if necessary, wear a NIOSH-approved respirator. Select respirator based on its suitability to provide adequate worker protection for given working conditions, level of airborne contamination, and presence of sufficient oxygen.

Hands

: Natural rubber (latex).


Other protection

: For operations which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particulates, use protective clothing, gloves and safety glasses to prevent skin and eye contact. Contact lenses should not be worn where industrial exposures to this material are likely. Use safety glasses or goggles as required for welding, burning, sawing, brazing, grinding or machining operations. Protective gloves should be worn as required for welding, burning or handling operations. Where the surface treatments are applied to the product, wear gloves when handling. Do not continue to use gloves or work clothing that has become saturated or soaked through with oil coating. Wash skin that has been exposed to oil with soap and water or waterless hand cleaner.

Personal protection in case of a large spill

: Safety glasses, goggles or face shield. Impervious gloves. Full suit. Boots. Wear NIOSH-approved self-contained breathing apparatus or equivalent and full protective gear. Wash hands, forearms and face thoroughly after handling compounds and before eating, smoking and using the lavatory and at the end of the day. Follow good industrial hygiene practice.

9 . Physical and chemical properties

Physical state

: Solid.

Color

: Metallic gray.

Odor

: Odorless.

Melting/freezing point

: Base Metal – 2750°F Metallic Coating – 800-900°F

Relative density

: 7.85

Dispersibility properties

: Not dispersible in cold water, hot water.

Solubility

: Insoluble in cold water, hot water.

10 . Stability and reactivity

Stability and reactivity

: The product is stable.

Incompatibility with various substances

: Will react with strong acids to form hydrogen. Iron oxide dusts in contact with calcium hypochlorite evolve oxygen and may cause an explosion.

Hazardous decomposition products

: Thermal oxidative decomposition of galvanized steel products can produce fumes containing oxides of zinc, iron and manganese as well as other elements. The acrylic resin in the coating may yield irritating particulates and noxious gases such as the oxides of carbon upon thermal oxidative decomposition.

Hazardous polymerization

: Will not occur.

11 . Toxicological information

Acute Effects

- Eyes** : May cause eye irritation. Particles of iron or iron compounds, which become imbedded in the eye, may cause rust stains unless removed fairly promptly.
- Skin** : May cause skin irritation upon contact. May cause sensitization by skin contact.
- Inhalation** : May cause respiratory tract irritation. Excessive inhalation of fumes of freshly formed metal oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns from many metals can produce an acute reaction known as "metal fume fever".
- Ingestion** : Ingestion of dust may cause nausea and/or vomiting.
- Potential chronic health effects** : Carcinogenic effects: Not classified or listed by IARC, NTP, OSHA, EU and ACGIH.
Mutagenic effects: Not available.
Teratogenic effects: Not available.
- Target organs** : Contains material which causes damage to the following organs: blood, kidneys, lungs, upper respiratory tract, skin, central nervous system (CNS).

12 . Ecological information

Zinc	Daphnia magna (EC50)	48 hour(s)	2.8 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.238 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.24 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.41 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	0.56 mg/l
	Daphnia magna (LC50)	96 hour(s)	0.57 mg/l
Manganese	Daphnia magna (EC50)	48 hour(s)	40 mg/l

Environmental precautions : TOXIC TO AQUATIC ORGANISMS. May cause long-term adverse effects in the aquatic environment.

Products of degradation : Some metallic oxides.

13 . Disposal considerations

Waste disposal : Steel scrap should be recycled whenever possible. Product dusts and fumes from processing operations should also be recycled, or classified by a competent environmental professional and disposed of in accordance with applicable federal, state or local regulations.

14 . Transport information

Regulatory information

UN/ IMDG/IATA DOT/TDG : Not regulated.

15 . Regulatory information

United States

- HCS Classification** : Target organ effects
- U.S. Federal regulations** : TSCA 6 proposed risk management: Lead
TSCA 8(b) inventory: All components listed.
SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Manganese; Zinc
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Iron: Fire hazard; Manganese: reactive, Immediate (acute) health hazard, Delayed (chronic) health hazard; Zinc: Fire hazard, Immediate (acute) health hazard, Delayed (chronic) health hazard
Clean Water Act (CWA) 307: Copper; Lead; Zinc
Clean Water Act (CWA) 311: No products were found.
Clean Air Act (CAA) 112 accidental release prevention: No products were found.
Clean Air Act (CAA) 112 regulated flammable substances: No products were found.
Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

SARA 313

Product name **CAS number** **Concentration**

Form R - Reporting requirements	: Zinc	7440-66-6	3 - 5
	: Manganese	7439-96-5	1 - 3
Supplier notification	: Zinc	7440-66-6	3 - 5
	: Manganese	7439-96-5	1 - 3

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

State regulations : Pennsylvania RTK: Copper: (environmental hazard, generic environmental hazard); Manganese: (environmental hazard, generic environmental hazard); Silicon: (generic environmental hazard); Sulfur: (generic environmental hazard); Aluminum: (environmental hazard, generic environmental hazard); Lead: (environmental hazard, generic environmental hazard); Zinc: (environmental hazard, generic environmental hazard)
 Massachusetts RTK: Copper; Manganese; Silicon; Sulfur; Aluminum; Lead; Zinc
 New Jersey: Copper; Manganese; Silicon; Sulfur; Aluminum; Lead; Zinc

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Lead	Yes.	Yes.	15 µg/day (ingestion)	Yes.

Canada

WHMIS (Canada) : Class D-2A: Material causing other toxic effects (Very toxic).



DSL : All components listed.

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all the information required by the CPR.

International lists : All components listed are listed on major international inventories or exempted from being listed in Australia (AICS), Europe (EINECS/ELINCS), Korea (TCCL), Japan (METI/MOL), Philippines (RA6969).

16 . Other information

Label requirements (U.S.A.) : MAY CAUSE RESPIRATORY TRACT, EYE AND SKIN IRRITATION. CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, KIDNEYS, LUNGS, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM.

Hazardous Material Information System (U.S.A.) :

HMIS RATING	
Health	* 1
Fire hazard	0
Physical Hazard	0
Personal protection	C

HAZARD RATINGS

- 4- Extreme
- 3- Serious
- 2- Moderate
- 1- Slight
- 0- Minimal

National Fire Protection Association (U.S.A.) :



References : ANSI Z400.1, MSDS Standard, 2004. - Manufacturer's Material Safety Data Sheet. - 29CFR Part1910.1200 OSHA MSDS Requirements. - 49CFR Table List of Hazardous Materials, UN#, Proper Shipping Names, PG. - Canada Gazette Part II, Vol. 122, No. 2. Registration SOR/88-64, 31 December 1987. Hazardous Products Act "Ingredient Disclosure List" - Canadian Transport of Dangerous Goods, Regulations and Schedules, Clear Language version 2005.

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