Sharon Coating, LLC

MATERIAL SAFETY DATA SHEET

Revised: April 30, 2008

Section 1 - Chemical Product and Company Identification

Product Name	Galvanized / Galvannealed Sheet - Carbon Steel
Product Code	Carbon Steel
Chemical Family	N/A
Chemical Name	N/A
Formula	N/A

Manufacturer: Sharon Coating, LLC
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Section 2 – Chemical Composition / Information on Ingredients

Typical Chemical Compositions and Recommended Occupational Exposure Limit

Ingredient Name	CAS No.	% WT. MIN / Max	OSHA Permissible Exposure Limit (PEL)[1]	ACGIH TLV [2]
Iron	7439-89-6	97-99	10mg/m^3 - As Iron Oxide Fume	5mg/m^3 (dust & fume)
Aluminum	7429-90-5	0.020-0.99	5mg/m^3 - As Respirable Fraction 15 mg/m^3 - As Total Dust	5mg/m^3 (fume) 10mg/m^3 (dust)
Carbon	7440-44-0	0.001-1.25	15mg/m^3 -Total Dust (PNOR)[3] 5mg/m^3 -Respirable Fraction (PNOR)	10mg/m^3 –Inhalable Fraction[4] (PNOS)[5] 3mg/m^3 –Respirable Fraction[6] (PNOS)
Manganese	7439-96-5	0.10-1.25	5mg/m^3 (C) –Fume & Mn Compounds	0.2 mg/m^3
Phosphorus	7723-14-0	0.10 max	0.1mg/m^3 - As Yellow Phosphorus	0.1mg/m^3
Silicon	7440-21-3	0.01-1.0	15mg/m^3 - As Total Dust 5mg/m^3 –Respirable Fraction	10mg/m^3
Sulfur Sulfur Oxide	7446-09-5 7704-34-9	0.001-0.10	15mg/m^3 –Total Dust (PNOR) 5mg/m^3 –Respirable Fraction (PNOR)	10mg/m^3 –Inhalable Fraction (PNOS) 3mg/m^3 –Respirable Fraction (PNOS)

Coating (Note: Percent weight is a percent of the total product.)				
Aluminum	7429-90-5	0.055 max.	15mg/m^3 –Total Dust 5mg/m^3 –Respirable Fraction	10mg/m^3 –Metal Dust 5mg/m^3 –Welding Fume
Antimony	7440-36-0	0.011 max.	0.5mg/m^3	0.5mg/m^3
Iron	7439-89-6	0.8 max.	10mg/m^3 –Iron Oxide Fume	5mg/m^3 –Iron Oxide Dust & Fume
Lead	7439-92-1	0.004 max.	0.05mg/m^3	0.05mg/m^3
Zinc	7440-66-6	0.15-9.1	5mg/m^3 –Fume 15mg/m^3 –Total Dust 5mg/m^3 –Respirable Faction	5mg/m^3 –Fume 10mg/m^3 –Fume 10mg/m^3 –Dust

Notes:
Galvanized sheet surfaces may be chemically treated, as requested by the customer, with trace amounts of chromate solution (approx. 1 to 2 mg/ft^2 per side or <0.002% of the total product weight) to prevent humid storage stain. Surface may also be treated with small amounts (<0.05%) of corrosion-inhibiting oil.
All commercial steel products may contain small amounts of various elements in addition to those specified. These small quantities (less than 0.1%) may exist as intentional additions, or as "trace" or "residual" elements that generally originate in the raw materials used. These elements may include: arsenic, boron, chromium, copper, molybdenum, nickel, niobium, nitrogen, tin, titanium, and vanadium.
[1] 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 exposures unless otherwise noted. A Short Term Exposure Limit (STEL) is defined as a 15-minute exposure, which should not be exceeded at any time during a workday.

[2] Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted.

[3] PNOR (Particulates Not Otherwise Regulated). All inert or nuisance dusts, whether mineral, inorganic or organic not listed specifically by substance name are covered by the PNOR limit which is the same as the inert or nuisance dust limit of 15mg/m^3 for the respirable fraction.

[4] Inhalable Fraction. The concentration of inhalable particulate for the application of this TLV is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH TLVs and BEIs Appendix D, paragraph A.

[5] PNOS (Particulates Not Otherwise Specified). Particulates identified under the PNOS heading are "nuisance dusts" containing no asbestos and <1% crystalline silica. A TWA-TLV of 10 mg/m^3 for respirable particulate has been recommended.

[6] Respirable Fraction. The concentration of respirable dust for the application of this limit is to be determined from the fraction passing a size-selector with the characteristics defined in the ACGIH TLVs and BEIs Appendix D, paragraph C.

Section 3 – Hazards Identification

Primary Routes of Entry: Inhalation
Note: Steel products under normal conditions do not present an inhalation, ingestion, contact health or environmental hazard. However, operations such as burning, welding, sawing, brazing, grinding, and possibly machining, etc., which result in elevating the temperature of the product to or above its melting point or result in the generation of airborne particles, may present health hazards.

Target Organs: Respiratory System

Acute Effects:
Inhalation: Excessive exposure to high concentrations of dust may cause irritation to the eyes, skin, and mucous membranes of the upper respiratory tract. 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". Symptoms consist of chills and fever (very similar to and easily confused with flu symptoms), metallic taste in the mouth, dryness and irritation of

the throat followed by weakness and muscle pain. The symptoms come on in a few hours after excessive exposures and usually last from 12 to 48 hours. Long-term effects from metal fume fever have not been noted. Freshly formed oxide fumes of manganese and copper and zinc have been associated with causing metal fume fever.

Eye: Excessive exposure to high concentrations of dust may cause irritation to the eyes. Particles of iron or iron compounds, which become imbedded in the eye, may cause rust stains unless removed fairly promptly. Touching or burning operations on steel products with oil coatings or surface treatments may produce emissions that can be irritating to the eyes.

Skin: Skin contact with dusts may cause irritation or sensitization, possibly leading to dermatitis. Repeated or prolonged contact with oil residue or surface chemical treatments may cause skin irritation, dermatitis or allergic reactions in sensitized individuals.

Ingestion: Ingestion of harmful amounts of this product as distributed is unlikely due to its solid insoluble form. Ingestion of dust may cause nausea or vomiting.

Chronic Effects:
Chronic inhalation of metallic fumes and dusts are associated with the following conditions:

Iron (Iron Oxide): Prolonged or repeated exposure to high concentrations may cause lung changes considered to be a benign pneumoconiosis (siderosis). Inhalation of iron oxide may cause irritation of eyes, nose, and throat, and metal fume fever.

Aluminum: Generally considered to be a nuisance particulate. May cause irritation to the upper respiratory tract, skin, and eyes. Inhalation of five particles may cause a pulmonary fibrosis known as Shaver's disease. Symptoms may include dypsnea, cough, and fatigue. May be implicated in Alzheimer's disease.

Carbon: Primarily a nuisance dust. May cause mild irritation to the eyes and mucous membranes.

Manganese: Exposure may cause irritation of the eyes, nose, and throat, metallic taste in mouth, and metal fume fever. Advanced exposure symptoms may include weakness, sleepiness, nervousness, lack of coordination, uncontrollable laughter, mental confusion, speech disturbance, and aggressiveness. Manganese exposure may cause bronchitis, pneumonitis and central nervous system disturbances.

Phosphorous: Inhalation of dusts and fumes of ferrophosphorus oxides may cause respiratory irritation.

Silicon: Primarily a nuisance dust. May cause mild irritation to the eyes and mucous membranes.

Sulfur: Sulfur compounds, present in the fumes, may irritate the skin, eyes, lungs and gastrointestinal tract.

Coating Oils: Steel coated with any oil may result in a mild skin irritation upon prolonged and repeated contact.

Antimony: Exposure of high concentrations of dust or fumes may cause irritation of the skin, bitter taste, nausea, muscular pains, and bronchitis.

Lead: Classified as a highly toxic heavy metal. As a cumulative hazard, it may affect a variety of organ systems, including the central nervous system, kidneys, reproductive system and gastrointestinal tract. Long-term over-exposure may produce kidney damage. Unborn children may suffer neurological or developmental problems due to excessive lead exposure in pregnant women.

Zinc: Prolonged skin contact to zinc oxide without proper hygiene may result in skin irritation from clogging of sebaceous glands (oxide pox). Prolonged eye contact with zinc oxide fume may result in conjunctivitis. Gastrointestinal disturbances and latent liver dysfunction have been reported from repeated zinc oxide inhalation.

Medical Conditions Aggravated by Exposure: Current respiratory conditions can be aggravated by exposure.

Section 4 – First-Aid Measures

Respiratory: For over exposure to airborne fumes and particles, remove exposed person to fresh air. If breathing is difficult or has stopped, administer artificial respiration or oxygen as indicated. Seek medical attention promptly. Metal fume fever may be treated by bed rest and administering a pain and fever reducing medication. Seek medical attention.

Skin: If thermal burn has occurred, flush area with cold water. Seek medical attention. For mechanical abrasions, seek medical attention.

Eyes: Flush eyes with large amounts of water to remove particles. Seek medical attention.

Section 5 – Fire-Fighting Measures

Steel products in the solid state present no fire or explosion hazard. However, the particulate generated may present a dust explosion hazard.

Section 6 – Accidental Release Measures

Spill or Leak Procedures – Product is a solid material as shipped, no potential for spill or leak.

Waste Disposal – Follow Federal, state, and local regulations.

Section 7 – Handling and Storage

Operations with the potential for generating high concentrations of airborne particles should be evaluated and controlled as necessary. Avoid breathing metal fumes and/or dusts.

Section 8 – Exposure Controls / Personal Protection

Respiratory: Use NIOSH/MSHA approved dust/mist respirators when generating particulates or fumes in accordance with 29CFR 1910.134.

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

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

Ventilation: Local exhaust ventilation should be provided 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 exposures.

Section 9 – Physical and Chemical Properties

Physical Form	Solid
Color	Metallic Gray
Odor	None
Boiling Point	N/A
Melting Point – Base Metal	2650-2750 Deg. F
Freezing Point	N/A
pH	N/A
Solubility in Water	Insoluble
% Volatiles	N/A
Evaporation Rate	N/A
Flash Point	None
Auto-ignition Temperature	N/A

Specific Gravity	7.85
Vapor Pressure @ 20C	N/A
Vapor Density	N/A

Section 10 – Stability and Reactivity

Stability	Stable
Hazardous Polymerization	Does not occur
Incompatibilities	None
Hazardous Decomposition/Byproducts	None

Section 11 – Toxicological Information

No toxicological concerns identified.

Section 12 – Ecological Information

No ecological concerns identified.

Section 13 – Disposal Considerations

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.

Section 14 – Transportation Information

No special transportation classifications.

Section 15 – Regulatory Information

Regulatory Information: *The following listing of regulations relating to a Sharon Coating, LLC product may not be complete and should not be solely relied upon for all regulatory compliance responsibilities.*

This product and/or its constituents are subject to the following regulations:

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.
OSHA Specifically Regulated Substance: Lead (29 CFR 1910.1025).

EPA Regulations:
RCRA (40 CFR 261): Steel scrap is not regulated as a solid waste or hazardous waste under this act. 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 Hazardous Substance (40 CFR 302.4): The product as a whole is not listed. However individual components of the product are listed: Phosphorous (Reportable Quantity (RQ) – 1#), Antimony (Reportable Quantity (RQ) - 5000#), and Lead (Reportable Quantity (RQ) – 10#). Manganese compounds are also listed although no reportable quantity is assigned to this generic or broad class.

SARA 311/312 Codes (40 CFR 370): Immediate (acute) health hazard and delayed (chronic) health hazard.

SARA 313 (40 CFR 372.65): Manganese is subject to SARA 313 reporting requirements.

State Regulations:
The product as a whole is not listed in any state regulations. However, individual components of the product are listed in various state regulations.

Pennsylvania Right to Know: Contains regulated material in the following categories:
- Hazardous Substances: Silicon and Sulfur.
- Environmental Hazards: Aluminum, Antimony, Lead, Manganese and Zinc.

New Jersey Right to Know: Contains regulated material in the following categories:
- Hazardous Substance: Aluminum (dust and fume), Antimony, Manganese and Sulfur
- Special Health Hazard Substances: Lead.

California Prop. 65: This product may contain an extremely small amount of lead in the coating. Also, an extremely small amount of hexavalent chromium passivation treatment may be applied to the surface if requested by the customer. Lead and hexavalent chromium are recognized to the state of California to cause cancer or reproductive toxicity. The product may also possibly contain trace quantities (generally much less than 0.1%) of metallic elements known to the state of California to cause cancer or reproductive toxicity. These include arsenic (inorganic), cadmium, lead and nickel.

WHMIS Classification (Canada):
Not classified, labeling required summarizing handling requirements.

Section 16 – Other Information

Prepared By: Sharon Coating, LLC

Hazard Rating Systems:
NFPA Code: 1-0-0
HMIS Code: 1*-0-0 PPE: See Section 8
* Denotes possible chronic hazard if airborne dusts or fumes are generated.

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