

SAFETY DATA SHEET

HOT-DIP GALVANIZED COATING

FILE NO.: 4158
SDS DATE: Rev 1, 01/01/2018

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: Hot-Dip Galvanized Coating

SYNONYMS: Galvanized Steel, Galvanized Metal, Hot-Dipped Galvanized Steel
PRODUCT CODES: Not Applicable (NA)

MANUFACTURER: Metalplate Galvanizing, L.P.

ADDRESSES:

Metalplate Galvanizing, L.P. 4450 7 th Ave North Birmingham, Alabama 35212 205-595-1106	Metalplate Galvanizing, L.P. 1120 39 th Street, North Birmingham, Alabama 35234 205-595-7103
Metalplate Galvanizing, L.P. 505 Selig Drive, S.W. Atlanta, Georgia 30336 404-691-0600	Metalplate Galvanizing, L.P. 7123 Moncrief Road, West Jacksonville, Florida 32219 904-768-6330
Metalplate Galvanizing, L.P. 10625 Needham Street Houston, Texas 77013 713-671-2454	Metalplate Galvanizing, L.P. 10635 Needham Street Houston, Texas 77013 713-672-9480
Metalplate Galvanizing, L.P. 14055 Farm Supply Road Roanoke, Louisiana 70581 337-753-2285	

EMERGENCY PHONE:

205-595-1106 (AL)	205-595-7103 (AL)
404-691-0600 (GA)	904-768-6330 (FL)
713-671-2454 (TX)	713-672-9480 (TX)
337-753-2285 (LA)	

CHEMTREC PHONE: 800-424-9300
OTHER CALLS: 205-595-4703 (Technical Department)
FAX PHONE:

205-591-4659 (AL)	205-595-2965 (AL)
404-699-2270 (GA)	904-764-3948 (FL)
713-671-2957 (TX)	713-672-8992 (TX)
337-753-2261 (LA)	

CHEMICAL NAME: Zinc Metal
CHEMICAL FAMILY: Nonferrous Heavy Metal
CHEMICAL FORMULA: Zn

PRODUCT USE: Construction Products, Finished Goods Products, Finished Goods Components

PREPARED BY: Paul Finger Lynes, PE, CHMM

SECTION 2: HAZARDS IDENTIFICATION

CLASSIFICATION

Hot-Dip Galvanized Coatings are not classified as hazardous according to the Globally Harmonized System (GHS) of Classification and Labeling of Chemicals. Constituents in the galvanized coating may represent a hazard if the material is heated, contacts incompatible materials such as acid or alkali, or changes form through cutting or grinding.

LABEL ELEMENTS

GHS label elements: Not Applicable

Hazard pictograms: Not Applicable

Signal Word: Not Applicable

Hazard Statement:

- Fumes, vapor, or dust may cause:
- Mild skin irritation
 - Eye irritation
 - Respiratory irritation

SAFETY DATA SHEET

HOT-DIP GALVANIZED COATING

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SDS DATE: Rev 1, 01/01/2018

SECTION 2: HAZARDS IDENTIFICATION (cont'd)

Precautionary Statement(s):

Prevention:

In the presence of fumes or dust:

- Wash hands thoroughly after handling
- Avoid breathing the dust or fumes without respiratory protection
- Do not eat, drink, or smoke
- Use in a well-ventilated area

Response:

IF ON SKIN: If skin irritation occurs. Wash with plenty of soap and water. Get medical advice/attention. Wash contaminated clothing before re-use or discard.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

If Eye Irritation Persists: Get medical advice/attention

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

A galvanized coating in its usual physical form does not present an inhalation, ingestion or contact hazard. However, operations such as welding, burning, or cutting may result in the above effects if exposures exceed recommended limits as listed in Section 8.

Disposal: Not Applicable

Storage: Exposure of the galvanized coating to precipitation can impact stormwater runoff.

Poisons Schedule (SUSMP): None allocated

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Composition of the galvanized coating:

Components	CAS Number	Proportion
Zinc	7440-66-6	93.9 – 96.0 %
Iron	7439-89-6	4.0 – 6.1 %
Bismuth	7440-69-9	0.0 – 0.07 %
Nickel	7440-02-0	0.0 – 0.0275 %
Lead	7439-92-1	0.0 – 0.02 %
Copper	7440-50-8	0.0 – 0.015 %
Aluminum	7429-90-5	0.0 – 0.0045 %
Cadmium	7440-43-9	0.0 – 0.0045 %
Tin	7440-31-5	0.0 – 0.0015 %
Chromium	7440-47-3	*

*After galvanizing, pieces are quenched in water containing sodium dichromate. A portion of the chromate coating applied to the surface of material does contain hexavalent chromium. After approximately three months of exposure, the hexavalent chromium typically decreases to non-detection levels. If cutting or welding takes place while chromate is potentially present, routine precautions for chromium exposure should be taken.

SECTION 4: FIRST AID MEASURES

No adverse health effects expected if the product is handled in accordance with this Safety Data Sheet. Symptoms or effects that may arise from exposure to fumes or dust are:

Inhalation: IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if feeling unwell.

Eye Contact: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin Contact: If skin irritation occurs, immediately wash with soap and water. Seek medical advice/attention if irritation persists.

Ingestion: IF SWALLOWED: Rinse mouth. Do not induce vomiting and call a poison center or doctor/physician.

Notes to Physician: Treat symptomatically and supportively.

SECTION 4: FIRST AID MEASURES (cont'd)

Short Term Effects:

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.

Skin: Skin contact with dusts may cause irritation or sensitization, possibly leading to dermatitis. Skin contact with metallic fumes and dust may cause physical abrasion.

Eyes: Excessive exposure to high concentrations of dust may cause irritation to the eyes. Particles of iron or iron compounds, which become embedded in the eye, may cause rust stains unless removed fairly promptly.

Inhalation: Excessive exposure to high concentrations of dust may cause irritation to the eyes, skin and mucous membranes of the upper respiratory tract.

Short Term Effects by Component:

Zinc: Fumes of zinc are in the form of zinc oxide. Inhalation of high levels of zinc oxide may result in tightness of chest, metallic taste, cough, dizziness, fever, chills, headache, nausea, and dry throat. Overexposure may produce symptoms known as metal fume fever or "zinc shakes," an acute, self-limiting condition without recognized complications. Symptoms of metal fume fever include: chills, fever, muscular pain, nausea and vomiting. Like any finely divided particulate matter, zinc oxide may cause mechanical irritation to skin and eyes.

Iron: Iron is harmful if swallowed, and can cause skin and eye irritation. Contact with iron oxide has been reported to cause skin irritation and serious eye damage.

Bismuth: Bismuth is flammable in powder form. Exposure may cause irritation to the eyes and mucous membranes.

Nickel: Exposure to high concentrations of nickel may cause severe damage to the lungs and kidneys, gastrointestinal distress, nausea, vomiting, diarrhea, neurological effects, pulmonary fibrosis and renal edema.

Lead: Exposure to high concentrations of lead may lead to persistent fatigue, irritability, loss of appetite, stomach discomfort and/or constipation, reduced attention span and insomnia.

Copper: Copper in the form of salts may act as an irritant to the eyes and mucous membranes.

Aluminum: Dust may irritate throat and nose.

Cadmium: Exposure to high concentrations of cadmium may cause sore throat and nasal tissue, cough, and metallic taste followed by malaise, stiffness, muscular pain, and shortness of breath.

Tin: Exposure to high concentrations of tin may cause the following: eye and skin irritations, headaches, stomachaches, sickness and dizziness, severe sweating, breathlessness, and urination problems.

Chromium: Breathing high levels of hexavalent chromium can cause irritation or damage to the nose and throat. Symptoms may include runny nose, sneezing, coughing, itching and a burning sensation. Some persons can also develop an allergic skin reaction, called allergic contact dermatitis. This occurs from handling liquids or solid containing hexavalent chromium. Once a person become allergic, brief skin contact causes swelling and a red, itchy rash that becomes crusty and thickened with prolonged exposure. Direct skin contact can also cause non-allergic skin irritation. Contact with non-allergic skin can also lead to chrome ulcers. These are small-crusted skin sores with a rounded border. They heal slowly and leave scars.

Long Term Effects by Component:

Zinc: Chronic exposure to zinc may cause respiratory irritation with nasopharyngitis and laryngitis.

Iron: Chronic inhalation of excessive concentrations of iron oxide fumes or dusts may result in the development of a benign pneumoconiosis, called siderosis, which is observable as an X-ray change. No physical impairment of lung function has been associated with siderosis. Inhalation of excessive concentrations of ferric oxide may enhance the risk of lung cancer development in workers exposed to pulmonary carcinogens.

Bismuth: Bismuth is flammable in powder form. Exposure may cause irritation to the eyes and mucous membranes.

Nickel: Exposure to nickel containing dusts has been associated with coughing and shortness of breath. Chronic changes include increased susceptibility to pulmonary edema and interstitial fibrosis. Nickel metal and its alloys are considered to be of low toxicity for both acute and chronic ingestion exposure. Repeated or prolonged overexposure to metallic nickel can produce kidney damage.

Lead: Prolonged exposure to lead may produce many of the symptoms of short-term exposure, and may also cause central nervous system damage, gastrointestinal disturbances, anemia, and weight drop. Symptoms of central nervous damage include fatigue, headaches, tremors, hypertension, hallucinations, convulsions, and delirium. Kidney dysfunction and possible injury has also been associated with chronic lead poisoning. Chronic overexposure to lead has been implicated as a causative agent for the

SECTION 4: FIRST AID MEASURES (cont'd)

impairment of male and female reproductive organs, but there is no present substantiation of this. Pregnant women should be protected from excessive exposure. Lead can cross the placental barrier and it is reported that infants with neurological disorders have been born to women who have experienced excessive exposure.

Copper: Long-term exposure to copper can cause irritation of the nose, mouth and eyes and it causes headaches, stomachaches, dizziness, vomiting and diarrhea. Intentionally high uptakes of copper may cause liver and kidney damage and even death. Industrial exposure to copper fumes, dusts, or mists may result in metal fume fever with atrophic changes in nasal mucous membranes. Chronic copper poisoning results in Wilson's disease, characterized by a hepatic cirrhosis, brain damage, demyelization, renal disease, and copper deposition in the cornea.

Aluminum: Long lasting uptakes of significant concentrations of aluminum can lead to serious health effects such as: damage to the central nervous system, dementia, loss of memory, listlessness, and severe trembling. Inhalation of finely divided aluminum and aluminum oxide powder has been reported as a cause of pulmonary fibrosis and lung damage.

Cadmium: The principal long-term effect of cadmium exposure involves the lungs, kidneys, and bones. The kidneys are the principal target organs of low-dose exposure. When the exposure is to newly generated cadmium fume, the lungs may be a primary target organ. Cadmium has also been postulated to adversely affect other organ systems such as the liver and cardiovascular system. In addition, there is evidence that cadmium exposure increases rates of lung carcinomas.

Tin: Chronic exposures to tin can cause the following: depression, liver damage, malfunctioning of immune systems, chromosomal damage, shortage of red blood cells, and brain damage (causing anger, sleeping disorders, forgetfulness and headaches).

Chromium: Chronic exposure can result in perforations and ulceration of the septum, bronchitis, decreased pulmonary function, pneumonia, asthma, and nasal itching and soreness.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media:

Not flammable or combustible. Use extinguishing measures that are appropriate for the surrounding fire.

Specific hazards arising from the substance or mixture:

Not applicable for solid product.

Special protective equipment and precautions for fire fighters:

Self-contained MSHA/NIOSH approved respiratory protection and full protective clothing should be worn when fumes and/or smoke from fire are present. Heat and flames cause emittance of arid smoke and fumes. Do not release runoff from fire control methods to sewers or waterways. Firefighters should wear full face-piece self-contained breathing apparatus and chemical protective clothing with thermal protection. Direct water stream will scatter and spread flames and should not be used.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Cold, solid metal: No special precautions are necessary beyond normal good hygiene practices. See Section 8 of the SDS for additional personal protection advice when handling this product. Hot metal: Avoid contact with hot material. Wear protective clothing as described in Section 8 of this SDS. Avoid generation and spreading of dust and fumes.

Environmental Precautions:

Follow applicable federal, state, and local regulations.

Methods and materials for containment and clean up:

For cleanup of material associated with dust or fumes, follow applicable OSHA regulations and all other pertinent state and federal requirements.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:

Avoid generation and spreading of dust. Do not breathe fumes or dust from this material. Avoid contact with sharp edges and hot surfaces. Use appropriate gloves and tools to ensure safe handling. Follow recommendations in ANSI Z49.1, Safety in welding and cutting. (ANSI = American National Standard Institute)

Conditions for safe storage, including any incompatibilities:

Whenever feasible store in a dry area. Store in a well-ventilated place. Store away from acids and incompatible materials.

SAFETY DATA SHEET
HOT-DIP GALVANIZED COATING

FILE NO.: 4158
SDS DATE: Rev 1, 01/01/2018

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits:

Ingredients	OSHA PEL	ACGIH TLV	NIOSH REL	IDLH
Zinc	5 mg/m ³ (as zinc oxide fume) 15 mg/m ³ (as total dust) 5 mg/m ³ (as respirable fraction)	2.0 mg/m ³ (as zinc oxide)	10 mg/m ³ (as total dust) 5.0 mg/m ³ (as respirable dust)	None Established
Iron	10 mg/m ³ (as iron oxide fume)	5.0 mg/m ³ (as iron oxide dust and fume)	5.0 mg/m ³ (as iron oxide dust and fume)	2,500 mg Fe/m ³
Bismuth	15 mg/m ³ total TWA, 5 mg/m ³ resp	10 mg/m ³ TWA	10 mg/m ³ total TWA, 5 mg/m ³ resp	Not determined
Nickel	1 mg/m ³	1.5 mg/m ³	0.015 mg/m ³	1.5 mg/m ³ as Ni
Lead	0.05 mg/m ³ ^e	0.05 mg/m ³	0.05 mg/m ³	100 mg Pb/m ³
Copper	0.1 mg/m ³ (as copper fume)	0.2 mg/m ³ (as copper fume)	0.1 mg/m ³ (as copper fume)	200 mg Cu/m ³ (as copper fume)
Aluminum	15 mg/m ³ (as total dust, Particulates not Otherwise Regulated) 5.0 mg/m ³ (as respirable fraction, Particulates not Otherwise Regulated)	10 mg/m ³ (as metal dust) 5.0 mg/m ³ (as welding fume)	10 mg/m ³ (as total dust) 5.0 mg/m ³ (as respirable dust)	None Established
Cadmium	0.005 mg/m ³ (as total dust) 0.005 mg/m ³ (as respirable particulate)	0.01 mg/m ³ (as total dust) 0.002 mg/m ³ (as respirable particulate)	None Established	50 mg Cd/m ³ (as cadmium dust)
Tin	2 mg/m ³	2 mg/m ³	2 mg/m ³	400 mg Sn/m ³
Chromium (VI)	5 µg/m ³	10 µg/m ³	1 µg/m ³	250 mg Cr/m ³

Appropriate engineering controls

Use controls as appropriate to minimize exposure to metal fumes and dusts during handling operations. Provide general or local exhaust ventilation systems to minimize airborne concentrations. Local exhaust is necessary for use in enclosed or confined spaces. Provide sufficient general/local exhaust ventilation in pattern/volume to control inhalation exposures below current exposure limits.

Personal Protective Equipment (PPE)

Respiratory Protection: When dusts are generated and ventilation is not sufficient to effectively remove them, appropriate NIOSH approved respiratory protection must be provided if airborne concentrations exceed exposure limits.

Protective Clothing/Equipment

Eyes: Wear appropriate eye protection to prevent eye contact. 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 safety glasses to prevent eye contact.

Skin: Wear appropriate personal protective clothing to prevent skin contact. 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, and gloves to prevent skin contact. Protective gloves should be worn as required for burning or handling operations.

Other protective equipment: Use good industrial hygiene practices in handling this material. Eye wash fountain and emergency showers are recommended. Always wash hands before smoking, eating, drinking or using the toilet. Wash contaminated clothing and other protective equipment before storage or re-use.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Silver luster to gray dull finish
Physical State:	Solid
Odor:	Odorless
Vapor Pressure:	Not Available
Odor Threshold:	Not Available
Vapor Density:	Not Available
pH:	Not Available
Specific Gravity:	7.1
Melting Point:	787°F (419°C)
Freezing Point:	Not Available
Solubility (ies):	Not Applicable
Boiling Point:	1665°F (907°C)
Flash Point:	Not Available
Evaporation Rate:	Not Available

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES (cont'd)

Flammability (solid, gas):	Not Available
Upper /Lower Flammability or Explosive Limits:	Not Available
Partition Coefficient: n-octanol/water:	Not Available
Auto-ignition Temperature:	Not Available
Decomposition Temperature:	Not Available
Viscosity:	Not Available

SECTION 10: STABILITY AND REACTIVITY

Reactivity: Product as supplied is not reactive.

Chemical Stability: Stable under normal conditions of use and storage.

Possibility of Hazardous Reactions: No data available.

Conditions to Avoid: Storage with strong acids or calcium hypochlorite.

Incompatible Materials: Avoid contact with acids and alkalis.

Hazardous Decomposition Products: Zinc boils off as vapor at elevated temperatures (1665°F or 907°C).

SECTION 11: TOXICOLOGICAL INFORMATION

Toxicological Data:

The following toxicity data have been determined for Hot-Dip Galvanized Coatings using the information available for its components applied to the guidance on the preparation of an SDS under the requirements of the GHS.

No LC₅₀ or LD₅₀ has been established for Hot-Dip Galvanized Coatings. The following data has been determined for the components:

- Zinc: LD₅₀ = > 2000 mg/kg (Oral/Rat)
- Iron: LD₅₀ = 1060 mg/kg (Oral/Rat)
- Lead: LD₅₀ = 1200 µg/kg (Oral/Rat)
- Copper: LD₅₀ = > 1124 mg/kg (Dermal/Rat)
- Aluminum (as Aluminum Oxide): LD₅₀ = >5000 mg/kg (Oral/Rat)
- Cadmium: LD₅₀ = 2330 mg/kg (Oral/Rat)
- Tin: LD₅₀ not available

No Skin Irritation data available for Hot-Dip Galvanized Coatings as a solid. The following Skin Irritation information was found for the components:

- Iron: Causes skin irritation
- Copper: May irritate the skin

No Eye Irritation available for Hot-Dip Galvanized Coatings as a solid. The following Eye Irritation information was found for the components:

- Zinc: Causes serious eye irritation
- Iron: Irritation
- Copper: May irritate eyes

No Germ Cell Mutagenicity data available for Hot-Dip Galvanized Coatings as a solid. The following Germ Cell Mutagenicity information was found for the components:

- Iron: IUCLID has found some positive and negative findings in vitro.
- Aluminum and Aluminum Oxide: IUCLID; ATSDR have found this ingredient is not mutagenic *in vitro*; but has marginal effects *in vivo*
- Cadmium: In vitro tests showed mutagenic effects, Category 2

Carcinogenicity: IARC, NTP, and OSHA do not list Hot-Dip Galvanized Coatings as a solid. The following Carcinogenicity information was found for the components:

- Lead: Possible (Group 2B, IARC), Carcinogen (Animal, A3, ACGIH)
- Cadmium: Group1 carcinogen

No Toxic Reproduction data available for Hot-Dip Galvanized Coatings as a solid. The following Toxic Reproductive information was found for the components:

- Lead: Suspected human reproductive toxicant, Category 1A
- Aluminum and Aluminum Oxide: ATSDR has found these ingredients may cause delay in development of neurobehavioral indices
- Cadmium: Suspected human reproductive toxicant, Category 2

SECTION 11: TOXICOLOGICAL INFORMATION (cont'd)

No Specific Target Organ Systemic Toxicity (STOST) following a Single Exposure data available for Hot-Dip Galvanized Coatings. The following STOST following a Single Exposure data was found for the components:

- Zinc: Listed as Category 3
- Iron: Listed as Category 3, Irritating to respiratory tract
- Copper: May cause respiratory irritation

No Specific Target Organ Systemic Toxicity (STOST) following Repeated Exposure data available for Hot-Dip Galvanized Coatings as a solid: The following STOST following Repeated Exposure information was found for the components:

- Zinc and Zinc Oxide: EU RAR has found rats repeatedly exposed by oral route to Zn salts developed reduced copper levels and changes in the pancreas (focal acinar degeneration and necrosis) and the spleen (decreased number of pigmented macrophages)
- Lead: May cause damage to organs through prolonged or repeated exposure, Category 2
- Aluminum and Aluminum Oxide: IPCS INTOX listed as Category 2, review have found chronic exposure to aluminum flake has been reported to cause pneumoconiosis in workers. ASTDR listed as Category 2, has found repeat oral exposure to aluminum results in decrements in neurobehavioral function and development.
- Cadmium: Causes damage to organs through prolonged or repeated exposure, Category 1

No Aspiration Hazard data available for Hot-Dip Galvanized Coatings as a mixture or found for its components.

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

No data available for the product, Hot-Dip Galvanized Coatings as a solid. However, individual components of the product have been found to be toxic to the environment. Metal dusts may migrate into soil and groundwater and be ingested by wildlife as follows:

- Zinc and zinc oxide: LC₅₀ (96 hours) 1.2 ppm Category 1, very toxic to aquatic life with long lasting effects
- Iron (as iron oxide): LC₅₀: > 1000 mg/L; Fish
- Lead: LC₅₀ 2.2 mg/L, Micropterus dolomieu
- Copper: LOEC 0.022 mg/L – 96 hours, Oncorhynchus mykiss (rainbow trout)
- Aluminum (as aluminum oxide): LC₅₀ > 100 mg/L for fish and algae
- Cadmium: LC₅₀ 1.0 µg/L – 96 hours, Pimephales promelas (fathead minnow)

Persistence and Degradability

No Data Available

Bioaccumulative Potential

- Zinc (as Zinc Oxide): Bioconcentration factor (BCF): < 172-217
- Zinc Chloride: Pimephales promelas (fathead minnow) 53 days, Bioconcentration factor (BCF): 21
- Lead: Oncorhynchus kisutch – 2 weeks – 150 µg/L, Bioconcentration factor (BCF): 12
- Copper: Cyprinus carpio (Carp) – 40 days – 200 mg/L, Bioconcentration factor (BCF): 108
- Aluminum: Salvelinus fontinalis – 56 days – 268 µg/L, Bioconcentration factor (BCF): 36
- Cadmium: Oncorhynchus mykiss (rainbow trout) – 72 days – 1.27 µg/L, Bioconcentration factor (BCF): 55

Mobility in Soil

No Data Available

PBT and vPvB Assessment

No Data Available

Other Adverse Effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

SECTION 13: DISPOSAL CONSIDERATIONS

Hot-Dip Galvanized Coatings 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: TRANSPORT INFORMATION

U.S. Department of Transportation (DOT) under 49 CFR 172 does not regulate Hot-Dip Galvanized Coatings as a hazardous material. All federal, state, and local laws and regulations that apply to this transport of this type of material must be adhered to.

Shipping Name: Not DOT Regulated

Shipping Symbols: NA

Hazard Class: NA

SAFETY DATA SHEET

HOT-DIP GALVANIZED COATING

FILE NO.: 4158
SDS DATE: Rev 1, 01/01/2018

SECTION 14: TRANSPORT INFORMATION (cont'd)

UN No: NA
Packing Group: NA
DOT/IMO Label: NA
Special Provisions (172.102): NA

The International Maritime Dangerous Goods (IMDG) and the Regulations Concerning the International Carriage of Dangerous Goods by Rail (RID) classification, packaging and shipping requirements follow the US DOT Hazardous Materials Regulation.

ADR – Regulations Concerning the International Carriage of Dangerous Goods by Road does not regulate Hot-Dip Galvanized Coatings as a hazardous material.

Shipping Name: Not DOT Regulated
Classification Code: NA
UN. No: NA
Packing Group: NA
ADR Label: NA
Special Provisions: NA
Limited Quantities: NA

IATA – International Air Transport Association (IATA) does not regulate Hot-Dip Galvanized Coatings as a hazardous material.

Shipping Name: Not DOT Regulated
Class/Division: NA
Hazard Label: NA
UN No: NA
Packing Group: NA
Excepted Quantities (EQ): NA

Transport Dangerous Goods (TDG) Classification: Hot-Dip Galvanized Coatings do not have a TDG classification.

SECTION 15: REGULATORY INFORMATION

U.S.

Ingredient listed on TSCA Inventory: Yes, Zinc and Lead
Hazardous Under Hazard Communication Standard: Yes (OSHA PELs for Tin and Aluminum)
CERCLA Section 103 Hazardous Substances:

Zinc: Reportable Quantity: 1,000 lb. (454 kg)*

*reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches)

EPCRA Section 302 Extremely Hazardous Substance: No

EPCRA Section 311/312 Hazard Categories: No Hazard Categories Apply

EPCRA Section 313 Toxic Release Inventory: Zinc (fume or dust) are reportable, Zinc Oxide (as zinc compound), Aluminum (fume or dust), Lead (10 lbs. (4.54 kg) reportable quantity), Cadmium

Canadian

Ingredients Listed on Domestic Substances List: Yes
WHMIS Classification: Not applicable. Zinc is not a controlled product under CPR.

European Union

Listed on the European Inventory of Existing Commercial Chemical Substances (EINECS): Yes

EU Classification: Not applicable. Zinc in ingot form is not listed as a dangerous substance. Aluminum and Tin are also not listed as a dangerous substance.

SECTION 16: OTHER INFORMATION

The information in this Safety Data Sheet is based on the following references:

- OSHA PELs (Permissible Exposure Limits) are 8-hour TWA (time-weighted average) concentrations unless otherwise noted.
- Threshold Limit Values (TLV) established by the American Conference of Governmental Industrial Hygienists (ACGIH) are 8-hour TWA concentrations unless otherwise noted. ACGIH TLVs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
- The National Institute for Occupational Safety and Health Recommended Exposure Limits (NIOSH – REL). NIOSH is the federal agency designated to conduct research relative to occupational safety and health. NIOSH RELs are for guideline purposes only and as such are not legal, regulatory limits for compliance purposes.
- The “immediately dangerous to life or health air concentration values (IDLHs)” are used by NIOSH as part of the respirator selection criteria.

SAFETY DATA SHEET
HOT-DIP GALVANIZED COATING

FILE NO.: 4158
SDS DATE: Rev 1, 01/01/2018

SECTION 16: OTHER INFORMATION (cont'd)

- American Conference of Governmental Industrial Hygienists (ACGIH), 2013, *Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices*.
- Emergency Response Guidebook: A Guidebook for First Responders During the Initial Phase of a Dangerous Goods/Hazardous Materials Transportation Incident, 2012,
<http://phmsa.dot.gov/staticfiles/PHMSA/DownloadableFiles/Files/Hazmat/ERG2012.pdf>
- *Globally Harmonized System of Classification and Labeling Chemicals*, New York and Geneva: United Nations, 2007.
http://www.unece.org/trans/danger/publi/ghs/ghs_rev02/02files_e.html
- National Institute for Occupational Safety and Health (NIOSH) Pocket Guide to Chemical Hazards, 2011,
<http://www.cdc.gov/niosh/npg/>

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