

## STEEL – SAFETY DATA SHEET

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#### 1. PRODUCT IDENTIFICATION

##### Importer / Supplier / Distributor:

**Material Use:** Manufacture of articles.  
Includes all sheet products, plate, strip, bar, slab, ingots, slabs and tubular products.

##### Importer / Supplier / Distributor:

**UnifiedAlloys**  
8835 – 50<sup>th</sup> Avenue  
Edmonton, Alberta CANADA  
T6E 5H4  
Emergency Phone #: (780) 468-5656 (on-call service)

The conditions or methods of handling, storage, use, and disposal of the product are beyond our control and may be beyond knowledge. For this and other reasons, we do not assume responsibility and disclaim liability for loss, damage, or expense arising out of or in any way connected with the handling, storage, use, or disposal of the product.

**Galvanize / Galvanneal:** Hot dipped zinc (CAS 7440-66-6) coating. Coating weights range from 15 to 500 g/m<sup>2</sup> per side. May be chemically passivated with a chromium compound which leaves a residue chromium level of 11 to 40 mg/m<sup>2</sup> per side. Petroleum based rust preventive oils are applied to oiled product. Typical oil coating weights range from 1.1-5.4 g/m<sup>2</sup> per side.

**Galvalume:** Hot dipped zinc (CAS 7440-66-6) 43% and aluminum (CAS 7429-90-5) 55% coating. Coating weights range from 50-150 g/m<sup>2</sup> per side. May also be passivated or oiled similar to galvanize material.

**Tin Plate:** Electroplated with tin (CAS 7440-31-5) coating. Coating weights range from 0.9 to 15 g/m<sup>2</sup> per side. Treated with chromium passivation solution which leaves a chromium residue of 0.5 to 7.5 mg/m<sup>2</sup> per side. May be coated with an edible oil to prevent scratching. Oil coating typically .01 micro inches thick.

**Chromium:** Electroplated with chromium (CAS 7440-47-3) coating, Coating weights range from 0.1 to 0.17 g/m<sup>2</sup> per side. May be coated with edible oil similar to tin plate.

**C2 Coating Electrical:** Glass film composed of magnesium ortho-silicate formed during high temperature anneals.

**C3 Coating Electrical:** Oil modified polyester resin varnish film.

**C5M Coating Electrical:** An inorganic iron-silicate complex that is heat and oil resistant with good insulating properties.

**Dry-Lube:** Mixture of borate and carbonate soap lubricants for metal forming.

**Pre-Lube:** Petroleum based oil coating used for metal forming.

**Lube Oil:** Lubricating protective petroleum based oil.

**Slushing Oil: Mineral** oil based protective coating containing small quantities of anti-oxidants.

**Varnishing Oil:** Solvent applied petroleum oil protective coating leaving a wax-like protective coating.


**Pre-coated:** Cured paint / resin film applied to sheet steel. Galvanized or galvalume coated steel sheet.



**Zincrometal:** Protective coating of zinc rich paint over a chromate based primer compound. Coating is applied to one side of strip. Typical coating weights range from 0.215 to 0.325 g/m<sup>2</sup>.

**NOTE:** Individual coating components are present at values below the reporting requirements of the WHMIS ingredient disclosure list.

#### 2. HAZARD IDENTIFICATION

**Classification:** Stainless steel and its alloys are considered as non-hazardous in its soiled form. However, certain process such as cutting, milling, grinding, sawing, brazing, machining and welding could result in some hazardous material being emitted.

SYMBOLS	HAZARD	HAZARD STATEMENTS
	Carcinogenicity Respiratory sensitizer Toxics to reproduction	May cause cancer May cause allergy or asthma symptoms or breathing difficulties if inhaled or can cause metal fume fever May cause genetic effects.

 EXCLAMATION	Skin Sensitizer repeated exposer	Amy cause skin allergies prolong exposer may damage internal organs
 ENVIRONMENT	Acute toxic to aquatic life Chronic to Aquatic life	Toxic to aquatic life with long lasting effects. Chronic to Aquatic life if exposure is prolonged.

**Label Element:** No labeling is applicable

**Other hazards:** According to OSHA hazard communication, this product is classified as Non hazardous material.

### 3. COMPOSITION INFORMATION ON INGREDIENTS

Component (*)	CAS Number	TLV ACGIH (mg/m <sup>3</sup> )	LD 50	Carbon & H.S.L.A. Steels	Electrical Steels	Leaded & Low Alloy Steels	Rails & Tie Plates	Tubular Products
Iron (Fe)	7438-86-6	5 (Fume)	U	91-99	91-99	92-96	94-96	94-96
Manganese (Mn)	7439-96-5	5	>9 gm/kg Oral Rat	<2.0	<2.0	<2.2	<1.1	<1.7
Chromium (Cr)	7440-47-3	0.5	U	<0.1	<1.0	<1.7	<1.6	<0.7
Nickel (Ni)	7440-02-0	1	>9 gm/kg Oral Rat	<1.0	<0.1	<2.1	<0.15	<0.5
Copper (Cu)	7440-50-8	1	U	<1.0	-	-	<0.1	<0.5
Phosphorous (P)	7732-14-0	0.1	U	<1.25	-	-	-	<0.1
Molybdenum (Mo)	7439-98-7	10	U	-	-	-	<0.12	<1.0
Lead (Pb)	7439-92-1	0.15	U	-	-	<0.35	-	-

\* (As required by WHMIS ingredient disclosure list. For exact composition, refer to analysis or specifications)

**NOTE:** This product contains no other hazardous ingredients requiring disclosure under current regulations.

### 4. FIRST-AID MEASURES

**Skin:** Maintain good personal hygiene. Wash with soap and water. Seek medical attention if irritation persists.

**Inhalation:** Move to fresh air. Seek medical attention if necessary.

**Eyes:** For irritation from any coating material, flush eyes with plenty of water for a period of no less than 15 minutes.

**Note:** Respiratory disorders may be aggravated by exposure to metallic and/or organic/inorganic coating dust or fumes. Consult a Physician. Do not induce vomiting or give liquids to an unconscious person.

### 5. FIRE AND EXPLOSION HAZARD

**1. Conditions of Flammability:** Steel products (Metal) does not present fire or explosion hazards under normal conditions. Fine metal particles such as those produced in grinding or sawing can burn. High concentrations of metal filings may present an explosion hazard.

**2. Means of extinction:** For molten metal use dry powder or sand. Do NOT use water on molten metals.

**3. Flashpoint and method of determination:** N/A (under normal conditions)

**4/5. Upper and Lower Flammable Limit:** N/A (under normal conditions)

**6. Auto-ignition temperature:** N/A (under normal conditions)

**7. Hazardous Combustion Products:** N/A (under normal conditions)

**8. Explosion Data: sensitivity to mechanical impact:** N/A (under normal conditions)

**9. Explosion Data: sensitivity to static discharge:** N/A (under normal conditions)

### 6. ACCIDENTAL RELEASE MEASURES

**Leak and Spill Procedures:** Not applicable to soiled state, no effect on Environment and Human lives. Solid metal does not pose any problems. Dust spills should be cleaned up avoiding dust generation. Collect and recycle to process. Wash down with water if in contact with acids.

### 7. HANDLING AND STORAGE

**Storage Requirements:** Keep stored material dry to prevent corrosion.

**Special Shipping Information:** N/A

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

**Personal Protective Equipment:** All protective equipment is recommended during welding, burning and handling. Depend upon processes being performed on material. Each operator must be addressed for suitable equipment.

**Gloves:** Protective gloves should be worn during welding, burning or handling operations.

**Clothing:** As required. Dependent on the operations and local welding codes.

**Respiratory:** NIOSH / MSHA approved dust and fume respirator should be used to avoid excessive inhalation of particles when exposure exceeds TLV's.

**Footwear:** CSA Z195.02 Steel Toed, safety shoes.

**Eye:** safety glasses, goggles or face shield should be worn as required by exposure.

**Other:** With molten metals, use full body cover clothing, including gloves, eyewear and footwear suitably treated to prevent burns

**Engineering Controls:** Engineering controls required if incase welding, milling, cutting and grinding work is performed. (e.g. ventilation, enclosures, specify) Depending on type of process performed a specific equipment and PPE's are required to perform the job safely.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

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### Physical and Chemical Properties

Physical State	Solid
Odor	NA
Evaporation Rate	NA
Boiling Point	NA
PH	NA
Solubility in Water	NA
Vapor Pressure	NA
Density	7.86
Appearance	Silver Grey
Volatility	NA
Odor threshold	NA
Specific gravity	7.65 – 7.94 ( 0.28 - 0.29 lb/in <sup>3</sup> )
Freezing Point	1530 Degree Celsius

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## 10. STABILITY AND REACTIVITY

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**Chemical Stability:** STABLE (under normal conditions of use and storage)

**Conditions of Reactivity:** N/A

**Hazardous Decomposition Products:** N/A

**Incompatibilities:** YES - Contact with Strong Mineral Acids will release Hydrogen Gas

**Possibility of hazardous Reactions:** Hazardous polymerization cannot occur.

**Reactivity:** This product is not reactive as supplied.

**Sensitivity to Mechanical Impact:** N/A

**Sensitivity to Static Discharge:** N/A

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## 11. TOXICOLOGICAL PROPERTIES

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### Route of Entry:

Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals. Inhalation of metal particulate or elemental oxide fumes generated during welding, burning, grinding or machining may pose acute or chronic health effects.

### Effects of Acute Exposure to Material:

Inhalation overexposure to manganese, copper or zinc (coated products) may cause metal fume fever characterized by fever and chills (flu-like symptoms). Appears 4-6 hours after exposure with no long-term effects.

### Effects of Acute Chronic Exposure to Material:

Prolonged inhalation overexposure to metal fume from product may cause the following effects: benign pneumoconiosis (siderosis) with few or now symptoms (iron oxide); certain nickel and chromium compounds have been listed with IARC as nasal lung carcinogens. Cobalt dust may result in an asthma-like condition (cough / shortness of breath).

**Irritancy of Material:** N/A

**Sensitization to Material:** N/A

**Mutagenicity of Material:** N/A

**Reproductive Effects:** N/A

**Teratogenicity of Material:** N/A

**Synergistic Materials:** N/A

**Carcinogenicity of Material:** N/A

IARC lists certain hexavalent chromium compounds under its group 1 category - "Confirmed Human Carcinogen."

IARC lists nickel and certain nickel compounds under its group 2A category - "Suspected Human Carcinogen."

### NOTE:

Iron containing welding fumes has an exposure limit of 5 mg/m<sup>3</sup> (ACGIH – TLV's 1988-89). Welding fumes may also contain contaminants from fluxes or welding consumables.

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## 12. ECOLOGICAL INFORMATION

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**Eco-toxicity:** No data available for Stainless steel and its alloys in their natural solid state.

**Presence of Degradability:** NO data available

**Bioaccumulation Potential:** NO data available

**Mobility in soil:** NO data available

**Other adverse effects:** None known.

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**13. DISPOSAL CONSIDERATION**

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**Waste Disposal:** Recover Steel for recycling. Follow applicable regulations. Dispose of in compliance with local regulations.  
**Leak and Spill Procedures:** N/A  
**Special Waste Disposal:** N/A

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**14. TRANSPORT INFORMATION**

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**General Shipping Information:** Material not regulated for shipping.  
**Un Number:** NA  
**Hazard Class:** NA  
**Special Shipping Information:** N/A

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**15. REGULATORY INFORMATION**

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**Domestic Substances List:** the components of this material are on the federal DSL inventory.  
**Other Canadian Regulations:** NA  
**WHMIS:** Class D2, materials causing other Toxic effects when other processes are performed (Welding, cutting and grinding)

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**16. OTHER INFORMATION**

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**Prepared By:** UnifiedAlloy  
**Telephone:** (780) 468-5656  
**Note:** Contact Supplier (Quality Department) for additional information

**Preparation Date:** December / 20 / 2018

**IMPORTANT!** Read this SDS before use or disposal of this product. Pass along the information to employees and any other persons who could be exposed to the product to be sure that they are aware of the information before use or other exposure. This SDS has been prepared in accordance with the Globally Harmonized System of Chemical and Labeling of Chemicals (GHS) Fifth Edition and the OSHA Hazard Communication Standard [29 CFR 1910.1200]. The SDS information is based on sources believed to be reliable. Available data, safety standards, and government regulations are subject to change and the conditions of handling and use, or misuse are beyond our control, Unified Alloys makes no warranty, either expressed or implied, with respect to the completeness or continuing accuracy of the information contained herein and disclaims all liability for reliance thereon. Additional information may be necessary or helpful for specific conditions and circumstances of use. It is the user's responsibility to determine the suitability of this product and to evaluate risks and exercise appropriate precautions for protection of employees and others prior to use.