



**Section 1 - PRODUCT IDENTIFICATION**

<b>Material</b>	<b>ZINC COATED SHEET STEEL</b>		<b>WHMIS Class</b> D2A, D2B
<b>Synonyms</b>	Galvanized, Galvanneal, Galvalume™, Galvalume Plus™		
<b>Manufacturer</b>	ArcelorMittal Dofasco Inc., P.O. Box 2460, Hamilton, Ontario, Canada L8N 3J5		
<b>General Information:</b>	1-905-548-7200 x 2959	<b>Material Use</b> Manufacture of steel articles	
<b>Emergency Contact:</b>	1-760-476-3962 Company Code: 333211		

**Section 2 - HAZARDOUS INGREDIENTS**

<b>Hazardous Ingredients</b>	<b>Weight %</b>	<b>CAS No.</b>	<b>LD50</b>	<b>Exposure Limit (mg/m<sup>3</sup>)</b>
Steel:				
Iron (Fe)	~ 95	7439-89-6	30 g/kg (rat-oral)	5 (Fume)
Manganese (Mn)	≤ 1.65	7439-96-5	9 g/kg (rat-oral)	0.2
Chromium (Cr)	≤ 1.1	7440-47-3	Unknown	0.5
Nickel (Ni)	≤ 0.12	7440-02-0	Unknown	1.5
(Hazardous Ingredients – lists components which meet the reporting requirements of the Hazardous Products Act.)				

Coating:				
1. Galvanized				
Zinc (Zn)	99	7440-66-6	Unknown	5 (Fume)
(Zn coating: Coating weights range from 15 to 500 g/m <sup>2</sup> per side or up to 20% total steel weight)				
2. Galvanneal				
Zinc (Zn)	88	7440-66-6	Unknown	5 (Fume)
Iron (Fe)	11	7439-89-6	Unknown	5 (Fume)
(Annealed Zn-Fe coating: Coating weights range from 20 to 100 g/m <sup>2</sup> per side or up to 10% total steel weight)				
3. Galvalume, Galvalume Plus				
Aluminum (Al)	55	7429-90-5	Unknown	10
Zinc (Zn)	43	7440-66-6	Unknown	5 (Fume)
(Al-Zn coating: Coating weights range from 50 to 150 g/m <sup>2</sup> per side or up to 15% total steel)				

Surface Treatments:				
(Constitutes less than 0.5% of total steel weight)				
1. Passivation -Chromic acid solution leaving a total chromium residual of 11 to 27mg/m <sup>2</sup> per side. Chromate passivation treatment (when specifically ordered) contains hexavalent chromium as a portion of the protective coating. In these cases, the actual concentration of hexavalent chromium present varies with steel gauge and coating weight. A hexavalent chromium free passivation treatment (E-Passivation) is also available.				
2. Slushing Oil - (Quaker Ferrocote 61 MAL HCL-1G, Quaker Ferrocote 61-AUS, PL-7105-A) Hydrotreated naphthenic oils or petroleum based lubricating oils containing sulphonates and anti-oxidants.				
3. Vanishing Oil - (Rustilo DW 924) Mineral oil and isoparaffin petroleum distillate. Oil Coating weights range from 1.1 to 5.4 g/m <sup>2</sup> per side.				
4. Pre Temper - (Quaker Qwerl N-263, Tempershield 56HF) White petroleum mineral oil.				
5. Galvalume Plus - (Oakite PC4610 or PC4648) Acrylic resin - chromium co-polymer of polystyrene-acrylate containing 2-27 mg/m <sup>2</sup> per side.				
6. Phosphate Coating – (Chemfos 2007) – Phosphate solution leaving a total phosphate residual of 0.3 to 1.5 g/m <sup>2</sup> (28 to 140 mg/ft <sup>2</sup> ).				

Note: Supplier MSDS for surface treatment oils are available from your ArcelorMittal Dofasco Technical Service Manager. ArcelorMittal Dofasco Steel products do not contain and are not manufactured with any Class I or Class II ozone depleting substances. ArcelorMittal Dofasco Zinc Coated sheet steel products meet the specific requirements of the Global Automotive Stakeholder Group (GADSL V2.0, 2006-01-10), European End-of-Life-Vehicle Directive (ELV2000/53EC). Dofasco non-passivated Zinc Coated sheet steel meets US Toxics in Packaging (Meet the 100 ppm combined total for Mercury, Cadmium, Lead and Hexavalent Chromium), European Packaging and Packaging Wastes Directive (94/62/EC), European Waste Electrical and Electronic Equipment Directive (WEEE2002/96/EC), Restriction of Hazardous Substances (RoHS) List (2000/95/EC). All automotive products are listed within International Material Data System (IMDS).

<b>Section 3 – PHYSICAL DATA</b>	<b>Section 4 – FIRE AND EXPLOSION DATA</b>
Silver Grey Metallic Solid Boiling Pt. (°C) – Not applicable Melting Pt. (°C) - 1530 Specific Gravity - 7.5 to 8	Non – Flammable. Will not support combustion
	<b>Section 5 – REACTIVITY DATA</b>
	Stable: Contact with strong mineral acids will release flammable hydrogen gas

**Section 6 – TOXICOLOGICAL PROPERTIES**

<b>ROUTE OF ENTRY</b> None in its natural state. Operations such as welding, burning, grinding or machining may pose acute or chronic inhalation health effects. Skin or eye contact with coating oils may cause irritation with prolonged or repeated contact.		
<b>EFFECTS OF ACUTE EXPOSURE</b> None to sheet steel. Welding, burning, grinding or machining can generate metal particulate or elemental oxide fumes. Inhalation overexposure to manganese fume has been reported to cause "metal fume fever" characterized by fever and chills (i.e., flu-like symptoms). Such an overexposure is unlikely due to the small amount of manganese available. Fumes or mists of surface treatment oils may irritate the eyes and upper respiratory tract, and cause headache, dizziness and / or nausea if exposure is excessive.		
<b>EFFECTS OF CHRONIC EXPOSURE</b> None to sheet steel. Chronic inhalation overexposure to metal fume (i.e., iron oxide fume) may cause a benign pneumoconiosis (i.e., siderosis) with few or no symptoms. Repeated or prolonged contact to coating oils may cause skin irritation and dermatitis. The health hazards associated with exposure to chromium are dependent upon its oxidation state. The metal form of chromium as it exists in this product is of very low toxicity. The hexavalent form is very toxic. Repeated or prolonged exposure to hexavalent chromium compounds may cause respiratory irritation, nosebleed, ulceration and perforation of the nasal septum. Industrial exposure to certain forms of hexavalent chromium has been related to increased incidence of cancer.		
<b>IRRITANCY</b> None	<b>Carcinogenicity- Chromium and Nickel (See Additional Information)</b> <b>Reproductive, Teratogenicity, Mutagenicity – no known effects</b>	<b>SYNERGISTIC MATERIALS</b> Unknown

**Section 7 – PREVENTATIVE MEASURES**

Dependent upon the process being performed on the sheet steel material.  
Each operation must be addressed for suitable personal protective equipment required.  
General ventilation is normally adequate. Welding requires local exhaust ventilation or fume filter respirator, gloves and eyewear. Avoid prolonged or repeated skin contact, launder oil-contaminated clothing. Use oil impervious gloves if required to prevent contact. Avoid eye contact with oil contaminated hands.

**Section 8 – FIRST AID MEASURES**

Eyes - Flush with water  
Skin - Wash contact areas with soap and water  
Inhalation - For overexposure to metal fume, remove person to fresh air. Seek medical attention.

**ADDITIONAL INFORMATION**  
IARC lists certain hexavalent chromium compounds under its Group 1 - "Confirmed Human Carcinogen". IARC lists certain nickel compounds under its Group 2A - "Suspected Human Carcinogen". Welding fume may also contain contaminants from fluxes and / or other welding consumables. Oil coatings should be removed prior to welding or grinding to minimize smoke generation.

**Section 9 – PREPARATION DATE**

<b>PREPARED BY</b> Health and Safety Department	<b>PHONE</b> (905) 548-7200 Ext. 2595	<b>DATE PREPARED</b> January 20, 2010
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# STEEL

# ACIER

## **REFER TO MATERIAL SAFETY DATA SHEET**



## **CONSULTER LA FICHE SIGNALÉTIQUE**

Overexposure to dusts or fumes generated during welding or burning steels, particularly those containing chromium or nickel, may cause respiratory disease.

High exposure to fumes during welding or burning of zinc coated products can cause reversible short-term flu-like symptoms.

Prolonged skin contact with coated steel may cause skin irritation in sensitive individuals.

LIMIT inhalation of dusts or fumes generated during processing.

LIMIT skin contact.

Overexposure to metal fumes: Move to fresh air. Seek medical attention if necessary.

Skin contact: Wash with soap and water.

Read the relevant Material Safety Data Sheet for more information

La surexposition aux poussières ou aux fumées générées lors du soudage ou brûlure des aciers, en particulier ceux contenant du chrome ou de nickel, pourrait causer des maladies respiratoires.

Une exposition intensive aux fumées lors du soudage des produits revêtus de zinc pourrait provoquer à court terme des symptômes réversibles de grippe.

Un contact prolongé avec de l'acier revêtu pourrait provoquer une irritation cutanée chez les personnes sensibles.

LIMITER l'inhalation des poussières ou des fumées générées pendant le traitement.

LIMITER Le contact avec la peau.

Si l'individu est surexposé aux fumées venant des métaux, emmenez la personne au grand air. Demandez des soins médicaux si nécessaire.

S'il y a contact avec la peau, lavez la peau avec l'eau et du savon.

Lire la fiche signalétique pour plus d'information.



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