

Safety Data Sheet

For the use of an Article

(Not required by the REACH – GHS Regulations)

1. IDENTIFICATION OF THE ARTICLE AND OF THE COMPANY/UNDERTAKING

Date drawn up: 03/07/2002

Date of latest revision: 19/05/2010

Version number: 6

Brand name: **Hot Dip Galvanised steels**

Reach status: Article

Company: ArcelorMittal
19, avenue de la Liberté
L – 2930 Luxembourg

Telephone: + 352 47 92 1

E-mail: fce-msds@arcelormittal.com

Website: www.arcelormittal.com

Department supplying safety information: ArcelorMittal Health & Safety – Product Safety
19, avenue de la Liberté
L – 2930 Luxembourg

E-mail: rip.reach@arcelormittal.com

Emergency Fax: +352 4792 89 3756

Uses: Steel for drawing, welding, etc.
Construction: wide sections for roofing and cladding, doors, door frames, metallic ceilings, partitions, structural members, profiling, roofing, cladding, structural components etc.
General industry: electrical cabinets, metal furniture, heating and ventilation, raceways etc.
Miscellaneous: electrical cabinets, aeraulic components, air conditioners, road signs etc.

Range:

Designation	Standard	Commercial Sheet
Continuously hot-dip coated steel flat products	EN10346	E20 + E80

2. HAZARDS IDENTIFICATION

Specific hazards: Related to protective oil, for articles delivered oiled.
Related to chromates, for articles delivered chromated.

Skin contact: In the event of direct contacts (without gloves) frequent or prolonged (oils, chromium hexavalent):
- Local effects: Possible irritation phenomena.
- Sensitization: Possible allergy phenomena.

Eye contact: Indirect (protective oil) Local effects: risk of irritation.

Inhalation: Respect of the occupational exposure limit values noted in this SDS. See heading 8.

Ingestion: Not applicable as it is.

Main hazard to the environment: None.

Prevention: Safety gloves and glasses must be worn during handling.



3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients (percent by weight):

Steel Substrate	Metallic Coating	Surface Treatments		Other
		Chromatation ¹	Easyfilm® S	
<u>Main Elements:</u> Fe > 95%, Mn < 1.7%, Al < 2% <u>Others elements:</u> Si < 0.6%, P < 0.1%, Nb < 0.09%, Ti < 0.3%.	Alloy Al – Si 10%	The chromate content is generally lower than 50 mg/m ² per side when applied.	- A CrVI surface treatment layer is applied representing an addition of chromium < 0.01%. - Polyacrylic modified polyester/polyurethane type.	Oil

Hazardous impurities:

None.

4. FIRST AID MEASURES

Specific hazards:

Related to protective oil and chromium hexavalent.

Skin contact:

Wash well with soap and large amounts of water.

Eye contact:

Indirect (protective oil)

Rinse with large amounts of water.
Take medical advice.**Inhalation:**

Not applicable as it is.

Ingestion:

Not applicable as it is.

Specific first aid:

Not applicable as it is.

5. FIRE FIGHTING MEASURES

Specific hazards:

Non-flammable.

Extinguishing media:

Use extinction means suitable with the stored products in the vicinity.

Specific protective measures:

No specific measures.

Specific dangers:

Not specifically concerned.

6. ACCIDENTAL RELEASE MEASURES

Individual precautions:

Not applicable as it is.

Environment precautions:

Article generates no particular environmental hazards.

Clean-up and recovery procedures:

Not specifically concerned.

¹ Chromates are composed of oxygen and hexavalent chromium.
Date of file: 19/05/2010



7. HANDLING AND STORAGE

Precautions to be taken during handling:	Delivered packaged. Normal precautions should be taken to avoid injuries possibly by sharp edges or by release of tension when breaking the straps.
Packaging materials:	Steel sheet and/or paper + tightened strip.
Precautions to be taken during storage and packaging:	Related to packaging: safety gloves (cuts), glasses and shoes must be worn. Risk of oil retention in bottom of packaging. When storing sheets, the risk of accidentally slipping should be kept in mind.
Incompatible materials:	Article has not to be stored where acids are present.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Whole-body protection:	Wear worker clothes.
Protection of hands:	Gloves anti-cuts.
Protection of eyes and/or face:	Safety glasses when opening packaging.
Respiratory protection:	Not applicable to article as it is.
Emergency facilities:	Not applicable to article as it is.
Other information:	Safety shoes must be worn.

Abbreviations:

TLV: Threshold Limit Value
 VEMP: Valeur d'Exposition Moyenne Pondérée
 VECD/P: Valeur plafond
 EV: Exposure Value
 EL: Exposure Limit
 P: Permissible
 R: Recommended
 W: Workplace
 TWA: Time-Weighted Average
 ST: Short-Term
 C: Ceiling
 NIC: Note of Intended Changes
 L: Exposure by all routes should be carefully controlled to levels as low as possible
 IDLH: Immediately Dangerous to Life or Health concentrations
 Ca: The notation "Ca" appears in the IDLH field for all substances that NIOSH considers potential occupational carcinogens
 NIOSH: The National Institute for Occupational Safety and Health
 OSHA: Occupational Safety and Health Administration
 CMR: Carcinogenic, Mutagenic and toxic for the Reproduction
 (A): alveolar fraction; (I): inhalable fraction; (R): respirable fraction

During welding, grinding, recycling by remelting:

Specific information on substances

Substance and its inorganic compounds	Melting point °C	Boiling Point °C	Risks
Manganese	1244	1962	Risk of metal fume fever among persons exposed. Risk of manganism among persons exposed.
Aluminium	660	2518	Risk of aluminium exposure à during welding.
Silicon	1413	2899	-
Phosphorus	44	276	-
Niobium	2476	4743	
Titanium	1667	3286	-
Zinc	419	907 at 1 bar	Risk of metal fume fever among persons exposed.
Chromium hexavalent compounds for chromatation and Easyfilm®	-	-	Risk of chromium hexavalent exposure during welding. Chromium VI compounds are classified carcinogenic 1 or 2.
For oil and Easyfilm®	Not applicable	Not applicable	During welding, there is emission of fumes and gases containing, in particular, carbon dioxide and carbon monoxide as well as Organic Compounds, including CMR substances at trace level, like for all organic coated materials welded and some methacrylate or acrylate compounds and isocyanates in case of use of Easyfilm® S.

Exposure limit values in mg/m³²

Substance	United Kingdom – EL		United States – ACGIH – TLV	
	W – TWA	W – ST	TWA	ST or C
Dust	10(I) – 4(R)	-	-	10(I) – 3(R)
Fe ₂ O ₃	5 (fume) as Fe	10 (fume) as Fe	5(R)	-
Manganese as Mn	0.5	-	0.2	-
Aluminium as Al	10(I) – 4(R)	-	1(R)	-
Silicon	10(I) – 4(R)	--	10 (withdrawn in 2006)	-
Amorphous silica (SiO ₂)	6(I) – 2.4(R)	-	2(R) (withdrawn in 2006)	-
Phosphorus as P ₂ O ₅	1	2	-	-
Niobium	-	-	-	-
Titanium	-	-	-	-
Titanium dioxide	10(I) – 4(R)	-	-	-
Zinc oxide	-	-	2	10
<i>For oil, chromatation and Easyfilm®</i>				
Hexavalent chromium compounds as Cr ³	0.05	-	0.05 (soluble) 0.01 (insoluble)	-
Carbon Monoxide	35	232	29	-

² TLVs and BEIs – USA ACGIH, 2008. California: Table AC-1 Permissible Exposure Limits for chemical contaminants. Michigan: Department of consumer & industry services director's office occupational health standards (as amended April 23, 2001). Minnesota: Subpart z -- Toxic and Hazardous Substances 1910.1000-air contaminants. Washington: Evaluate and Control employee Exposures Chapter 296-841 WAC, table 3 Permissible Exposure Limits (PELs) for airborne contaminants. Quebec: Règlement sur la santé et la sécurité du travail Incluant la Gazette officielle du 30 Janvier 2009). Ireland: 2007 Code of Practice for the Safety, Health and Welfare at Work (Chemical Agents) Regulations 2001 (S.I. No. 619 of 2001), Permissible exposure limits are published in the U.S. Code of Federal Regulations, Occupational Safety and Health Standards on Toxic and Hazardous Substances, 29 CFR 1910.1000, Tables Z-1 and Z-3. NIOSH pocket guide to chemical hazards, Department of Health and Human Services Centers for disease control and prevention, National institute for occupational safety and health, September 2007 DHHS (NIOSH) publication no. 2005-149. Occupational Health and Safety Act, Loi sur la santé et la sécurité au travail, R.R.O. 1990, REGULATION 833, Amended to O. Reg. 607/05, Ontario (December 2009). Alberta: Occupational Health and Safety Code 2009. EH40/2005 Workplace exposure limits – United Kingdom, October 2007.

³ In case of chromatation or Easyfilm® S

Substance	United Kingdom – EL		United States – ACGIH – TLV	
	W – TWA	W – ST	TWA	ST or C
Carbon Dioxide	9150	27400	9150	54800
Benzene	3.25	-	1.6	8
1, 3-butadiene	22	-	4.4	-
Formaldehyde	2.5	2.5	-	0.37C
Benzo(a)pyren	-	-	L*	-
Hydrogen cyanide ⁴	-	11	-	4.7C ppm (as CN)
Cyanides ⁴ (as CN)	5	-	-	5C

Substance	United States – California – EL			United States – Michigan – EL		
	P	ST	C	TWA	ST	C
Dust	10 – 5(R)	-	-	15 – 5(R)	-	-
Fe ₂ O ₃ as Iron	5 (fume)	-	-	10 (fume)	-	-
Manganese as Mn	0.2 (fume and compounds)	3 (fume)	-	1 (fume)	3 (fume)	5 (compounds)
Aluminium as Al	5 (welding fumes)	-	-	5 (welding fumes)	-	-
Silicon	10 – 5(R)	-	-	10 – 5(R)	-	-
Amorphous silica (SiO ₂)	6 – 3(R)	-	-	6	-	-
Phosphorus as P ₂ O ₅	-	-	-	-	-	-
Niobium	-	-	-	-	-	-
Titanium	-	-	-	-	-	-
Titanium dioxide	10 – 5(R) as Ti	-	-	10	-	-
Zinc oxide fume	5	10	-	5	10	-

For oil, chromatation and Easyfilm®

Hexavalent chromium compounds as Cr ³	0.005		0.1	-	-	-
Carbon Monoxide	29	-	232	40	-	229
Carbon Dioxide	9000	54000	-	18000	54000	-
Benzene	3.19	15.95	-	3.19	15.97	-
1, 3-butadiene	2.2	11	-	2.2	11.1	-
Formaldehyde	0.92	2.46	-	0.9	2.5	-
Benzo(a)pyren	-	-	-	-	-	-
Hydrogen cyanide ⁴	-	-	5	-	5	-
Cyanides ⁴ as CN	5	-	-	5	-	-

Substance	United States – Minnesota – EL			United States – Washington – EL		
	TWA	ST	C	TWA	ST	C
Dust	15 – 5(R)	-	-	15 – 5(R)	20 – 10(R)	-
Fe ₂ O ₃ as Iron	10 (fume) Total particulate	-	-	5 (dust and fume)	10 (dust and fume) Total particulate	-
Manganese as Mn	1 (fume)	3 (fume)	5 (compounds)	1 (fume)	3 (fume)	5 (compounds)

Substance	United States – Minnesota – EL			United States – Washington – EL		
	TWA	ST	C	TWA	ST	C
Aluminium as Al	5 (welding fumes)	-	-	5 (welding fumes)	10 (welding fumes)	-
Silicon	10 – 5(R)	-	-	10 – 5(R)	20 – 10(R)	-
Amorphous silica (SiO ₂)	6	-	-	6	12	-
Phosphorus as P ₂ O ₅	-	-	-	-	-	-
Niobium	-	-	-	-	-	-
Titanium	-	-	-	-	-	-
Titanium dioxide	10 – 5(R)	-	-	10	20	-
Zinc oxide fume	5	10	-	5	10	-
<i>For oil, chromatation and Easyfilm®</i>						
Hexavalent chromium compounds as Cr ³	0.0005 (See 1910.1026)	-	-	0.005		
Carbon Monoxide	40	-	229	40	232 (5min)	1740
Carbon Dioxide	18000	54000	-	9150	54800	-
Benzene	3.19 (see 1910.1028)	15.95	-	3.19 (see chapter 296-849 WAC)	15.95	-
1, 3-butadiene	2.21 (see 1910.1051)	11.05	-	2.21 (see WAC 296-62-07460)	11.05	-
Formaldehyde	0.92 (see 1910.1048)	2.46	-	0.92 (see chapter 296-856 WAC)	2.46	-
Benzo(a)pyren	-	-	-	-	-	-
Hydrogen cyanide ⁴	-	5	-	-	4.7 ppm	-
Cyanides ⁴ as CN	5	-	-	5	10	-
Substance	United States –EL (OSHA)		United States – EL (NIOSH)			
	P – TWA	P – C	R – TWA	R – ST		
Dust	15 – 5(R)	-	-	-		
Fe ₂ O ₃	10 (fume)	-	5 (fume and dust)	-		
Manganese as Mn	-	5 (fume and compounds)	1 (fume and compounds)	3 (fume and compounds)		
Aluminium as Al	15 – 5(R)	-	5 (welding fumes)	-		
Silicon	15 – 5(R)	-	10 – 5(R)	-		
Amorphous silica (SiO ₂)	-	-	6	-		
Phosphorus as P ₂ O ₅	-	-	-	-		
Niobium	-	-	-	-		
Titanium	-	-	-	-		
Titanium dioxide	15	-	-	IDLH: 5000 Ca		
Zinc oxide fume	5	-	5	10		
<i>For oil, chromatation and Easyfilm®</i>						
Hexavalent chromium compounds as Cr ³	0.005 (see 1910.1026)	1mg/10m ³	0.001 Ca	-		
Carbon Monoxide	55	-	40	229C		

Substance	United States –EL (OSHA)		United States – EL (NIOSH)	
	P – TWA	P – C	R – TWA	R – ST
Carbon Dioxide	9000	-	9000	54000
Benzene	3.19 (see 1910.1028)	15.95	0.319 Ca	3.19 Ca
1, 3-butadiene	2.21 (see 1910.1051)	11.05	-	IDLH: 4420 Ca
Formaldehyde	0.92 (see 1910.1048)	2.46 ST	0.02	0.123
Benzo(a)pyren	-	-	-	-
Hydrogen cyanide ⁴	11	-	-	5
Cyanides ⁴ as CN	-	-	-	-

Substance	Canada – Quebec		Ireland – EL	
	VMEP	VECD/P	TWA	ST
Dust	10	-	4 (R) – 10 (I)	-
Fe ₂ O ₃ as Iron	5 (fume and dust)	-	5 (fumes)	10 (fume)
Manganese as Mn	1 (fume); 5 (dust and compounds)	3 (fume)	1 (fume); 0.2 (compounds)	3 (fume)
Aluminium as Al	5 (welding fumes)	-	5 (welding fumes)	-
Silicon	10	-	10 – 4(R)	-
Amorphous silica (SiO ₂)	2 (fumes)	-	6 – 2.4(R)	-
Phosphorus as P ₂ O ₅	-	-	-	2
Niobium	-	-	-	-
Titanium	-	-	-	-
Titanium dioxide	10	-	10 – 4(R)	-
Zinc oxide fume	5	10	5	10

For oil, chromatation and Easyfilm®

Hexavalent chromium compounds as Cr ³	0.01 (insoluble) 0.05 (soluble)	-	0.05	-
Carbon Monoxide	40	230	23	115
Carbon Dioxide	9000	54000	9000	27000
Benzene	3	15.5	3	-
1, 3-butadiene	4.4	-	2.2	-
Formaldehyde	-	3P	2.5	2.5
Benzo(a)pyren	0.005	-	-	-
Hydrogen cyanide ⁴	-	11 as CN	-	10
Cyanides ⁴ as CN	-	11	5	-

Substance	Canada – Alberta – EL			Canada – Ontario – EV		
	TWA	ST	C	TWA	ST	C
Dust	-	-	-	10 (I) – 3(R)	-	-
Fe ₂ O ₃	5 (R)	-	-	5 (R)	-	-
Manganese as Mn	0.2	-	-	0.2	-	-
Aluminium as Al	10 (metal and oxide dust)	-	-	10 (metal and oxide dust)	-	-
Silicon	-	-	-	10	-	-
Amorphous silica (SiO ₂)	-	-	-	2(R) (fume)	-	-
Phosphorus as P ₂ O ₅	-	-	-	-	-	-

Substance	Canada – Alberta – EL			Canada – Ontario – EV		
	TWA	ST	C	TWA	ST	C
Niobium	-	-	-	-	-	-
Titanium	-	-	-	-	-	-
Titanium dioxide	10	-	-	10	-	-
Zinc oxide	2 (R)	10 (R)	-	2 (R)	10 (R)	-
<i>For oil, chromatation and Easyfilm®</i>						
Hexavalent chromium compounds as Cr ³	0.05 (water soluble) 0.01 (insoluble)	-	-	0.05 0.01 (insoluble)	-	-
Carbon Monoxide	29	-	-	29	115	-
Carbon Dioxide	9000	-	-	9000	54000	-
Benzene	1.6	8	-	1.6	7.97	-
1, 3-butadiene	4.4	-	-	4.42	-	-
Formaldehyde	0.9	-	1.3	-	1.23	1.84
Benzo(a)pyren	-	-	-	- ⁵	-	-
Hydrogen cyanide ⁴	-	-	5.2			4.7 ppm
Cyanides ⁴ as CN	-	-	5	-	-	5

Exposure path:

Air.

Associated symptoms:

None.

Prevention:

During any processing of the article (welding, grinding, cutting, recycling by remelting, etc.) in which dust, fumes or gas can be generated, ensure that the limits listed above are not exceeded at the workplace.

Extraction is therefore recommended at the workplace. Otherwise, personal protective equipments (PPE) should be necessarily worn⁵.

Hygiene:

Not applicable to article as it is.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:

Solid.

Colour:

Metallic appearance.

pH:

Not applicable.

Characteristic temperatures:

Not applicable.

Flash point:

Not applicable.

Oxidizing properties:

Not applicable.

Specific density:

About 7800 Kg/m³.

Solubility:

Not applicable, article not soluble in water.

Radioactivity:

None in all cases.

10. STABILITY AND REACTIVITY

Stability:

Stable.

Hazardous reactions:

No known hazardous reactions with usual substances.

Hazardous decomposition products:

None.

Materials to be avoided:

None.

Conditions to be avoided:

None.

⁵ Known toxic agents for which exposure values have not been established, and to which any exposure should be avoided

⁶ It will be noted that collective protection should be firstly used prior to PPEs.



11. TOXICOLOGICAL INFORMATION

Specific hazards:

Related to protective oil, for articles delivered oiled. See specific SDS of used protective oil.

Related to chromates, for articles delivered chromated.

Skin contact:

In the event of direct contacts (without gloves) frequent or prolonged (oils, chromium hexavalent):

- Local effects: Possible irritation phenomena.

- Sensitization: Possible allergy phenomena.

Safety gloves should be worn during handling.

Eye contact:

Indirect (protective oil)

Local effects: risk of irritation.

Safety glasses should be worn.

Inhalation:

Respect of the occupational exposure limit values noted in this SDS. See heading 8.

Ingestion:

Not applicable as it is.

12. ECOLOGICAL INFORMATION

Ecotoxicity:

Article insoluble in water. Material recycled from scraps.

13. DISPOSAL CONSIDERATIONS

Treatment procedure prior to disposal/ destruction:

Article recyclable and recycled from scraps.

Used packaging cleaning, treatment, destruction procedures:

Destruction of packaging in accordance with applicable legislation

14. TRANSPORT INFORMATION

Article not dangerous with regard to transport rules.

15. REGULATORY INFORMATION

E.U. compulsory labeling:

No labeling required.

Specific protection of workers:

Not applicable.

16. OTHER INFORMATION

No other information.



Comments to the Users:

Due to the fact that the product concerned in this document has a status of article in the meaning of the Reach regulation, this document doesn't constitute a Safety Data Sheet in the meaning of the article 31 of the REACH regulation n° 1907-2006. In consequence, its supply is purely facultative. It enables to communicate the risks related to the processing of the article.

This sheet supplements but does not replace instruction manuals. The information contained herein is given to the best of our knowledge concerning the article indicated on the date on which it was updated. Information is provided in good faith.

Attention of users is also drawn to possible risks which may arise if the article is applied for purposes other than those for which it has been designed.

This sheet does not in any way exempt the user from knowing and complying with all the regulatory texts applying to his or her activity. The user takes full responsibility for knowing and taking the precautions related to the use of the article. References to regulatory provisions are given to assist the user in fulfilling the obligations incumbent on persons using a dangerous preparation.

All local and international measures and provisions which could apply should be referred to.

Attention of users is drawn to the possible existence of other provisions supplementing these rules.

This list is not to be taken as comprehensive. It does not exempt the user from ensuring that obligations under texts other than those to which reference is made do not apply to the detention and use of the article, for which the user alone is responsible.