

Safety Data Sheet

1. IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY:

Date drawn up: 06/28/2006

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Version number: 2

Brand name: **ALUZINC®**
Indoor or Outdoor Building
General Industry

Manufacturer: ARCELOR
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Range:

Designation	Standard	Commercial Sheet
Steels for cold forming and deep drawing applications	EN10327	E40
Structural Steels	EN10326	E40
High strength low alloy steels	EN10292	E40

2. COMPOSITION AND INFORMATION ON INGREDIENTS:

Ingredients (percent by weight):

Steel substrate	Metallic Coating	Surface treatment
Main elements: Fe > 90%, Mn < 3%, Al < 1.5%, Cr 1.5% Others elements: Si < 1 %, P < 0.1%, Cu < 0.6%, Nb < 0.1%, V < 0.3%, Ti < 0.2%, Mo < 0.6 %, Ni < 1%.	ALUZINC : Zn 43.4 % – Al 55% – Si 1.6 % alloy	Oil and /or chromated ¹ . The chromate content is generally lower than 50 mg/m ² per side when applied.

Hazardous impurities: None.

Product family: Metallic coated steels

Other information: In the presence of metal and/or oil, the quantity of chromates present on the surface decreases over time.

¹ Chromates are composed of oxygen and hexavalent chromium.
Date of file: 12/14/2006

3. IDENTIFICATION OF HAZARDS:

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

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:	Product not specifically concerned.

6. ACCIDENTAL RELEASE MEASURES:

Individual precautions:	Not applicable as it is.
Environment precautions:	Product generates no particular environmental hazards.
Clean-up and recovery procedures:	Not specifically concerned.

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:	Product 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 product as it is.
Emergency facilities:	Not applicable to product as it is.
Other information:	Safety shoes must be worn.

Occupational exposure limits values²:

During welding, grinding and recycling by remelting:

For dust:

Alveolar fraction:	
TRGS 900: 3mg/m ³	VLA – ED*: 3mg/m ³
Inhalable fraction:	
TRGS 900: 10mg/m ³	VLA – ED*: 10mg/m ³

For iron:

Production of iron oxide fumes during welding.

Exposure limits values for Fe₂O₃ (expressed in iron):

VME*: 5mg/m ³	TLV – TWA*: 5mg/m ³	VEMP*: 5mg/m ³	TWAEV*: 5mg/m ³
OEL – TWA*: 5mg/m ³	VLA – ED*: 5mg/m ³	WEL – TWA*: 5mg/m ³	WEL – STEL*: 10mg/m ³

² Valeurs limites d'exposition professionnelle aux agents chimiques en France, Aide Mémoire Technique ED984, 2006, Institut National de Recherche et de Sécurité. . Documentation of the TLVs and BEIs with Other Worldwide Occupational Exposure Values, CD-ROM, 2005, ACGIH. Règlement sur la santé et la sécurité du travail Incluant la Gazette officielle du 31 mai 2006, Québec. 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. Alberta Regulation 393/88, update: 2004-04-30. TRGS 900-2006: "Grenzwerte in der Luft am Arbeitsplatz – Luftgrenzwerte - Deutschland". Valores límite de Exposición Profesional para Agentes Químicos en España, adoptados por el Instituto Nacional de Seguridad e Higiene en el Trabajo (INSHT) para el año 2006, EH40/2005 Workplace exposure limits – United Kingdom

SSA/DSPA

For manganese:

Above 1244°C: manganese melts.

Boiling point: 1962°C

Risk of metal fume fever among persons exposed.

Risk of manganism among persons exposed.

Exposure limits values (as Mn):

VME*: 1mg/m³ TLV – TWA*: 0.2mg/m³ AGW*: 0.5img/m³ VEMP*: 1mg/m³ TWAEV*: 0.2mg/m³
 OEL – TWA*: 1mg/m³ VECD*: 3mg/m³ VLA – ED*: 0.2mg/m³ OEL – STEL*: 3mg/m³
 WEL – TWA*: 0.5mg/m³

For aluminium:

Above 660°C: aluminium melts.

Boiling point: 2518°C

Risk of aluminium exposure à during welding.

Exposure limits values in the fumes (as Al):

VME*: 5mg/m³ TLV – TWA*: 5mg/m³ VEMP*: 5mg/m³ TWAEV*: 5mg/m³ VLA – ED*: 5mg/m³
 OEL – TWA*: 5mg/m³ OEL – STEL*: 10mg/m³ WEL – TWA*: 4r, 10img/m³

For chromium:

Above 1857 °C: chromium melts.

Boiling point: 2672 °C

Risk of chromium exposure during welding.

Exposure limits values (as Cr):

VME*: 0.5mg/m³ TLV – TWA*: 0.5mg/m³ AGW*: Not informed VEMP*: 0.5mg/m³ TWAEV*: 0.5mg/m³
 OEL – TWA*: 0.5mg/m³ VLA – ED*: 0.5mg/m³ WEL – TWA*: 0.5mg/m³

For zinc:

Above 419°C: zinc melts.

Boiling point: 907°C at 1 bar.

Risk of metal fume fever among persons exposed.

Exposure limits values as zinc oxide:

VLA – ED*: 5mg/m³ VLA – EC*: 10mg/m³ VME: 5mg/m³ TLV – TWA*: 5mg/m³
 TWAEV*: 2mg/m³ OEL – TWA*: 5mg/m³ WEL*: Not informed

MAK* (Work temperature > 850 °C): - 2amg/m³ for Casting process, flame soldering and brazing, flame spraying, braze welding sweat and gumption procedure
 - 1amg/m³ in all other cases.

For chromium hexavalent

Risk of chromium hexavalent exposure during welding.

Chromium VI compounds are classified carcinogenic 1 or 2.

Exposure limits values (as Cr):

VME*: 0.05mg/m³ TLV – TWA*: 0.05mg/m³ TRK*: 0.05img/m³ VEMP*: 0.05mg/m³
 PEL*: 0.005mg/m³ TWAEV*: 0.05mg/m³ OEL - TWA*: 0.05mg/m³ WEL – TWA*: 0.05mg/m³
 VLA – ED*: 0.05 (insoluble); 0.01 (soluble)mg/m³

For silicon:

Above 1413°C: silicon melts.

Boiling point: 2899°C.

Exposure limits values:

For silicon:

VME*: 10mg/m³ AGW*: Not informed TLV – TWA*: 10mg/m³ TWAEV*: 10mg/m³
 VEMP: 10mg/m³ VLA – ED*: 10i and 4r mg/m³ OEL – TWA*: 5r and 10 (total) mg/m³
 WEL – TWA*: 10i, 4r mg/m³

For amorphous silica (SiO₂):

VME*: Not informed AGW*: 4rmg/m³ TLV – TWA*: 2rmg/m³ TWAEV*: 2rmg/m³ VEMP: 2mg/m³
 VLA – ED*: 2rmg/m³ OEL – TWA*: 2r and 5 (total) mg/m³ WEL – TWA*: 6i, 2.4r mg/m³

³ Proposal 2006 : 2mg/m³

SSA/DSPA

For phosphorus:

Above 44°C: phosphorus melts.

Boiling point: 276°C

Exposure limits values (as P₂O₅):

VME*: 1mg/m³ MAK*: 1img/m³ VLA – ED*: 1mg/m³ WEL – STEL*: 2mg/m³
 TWAEV*: Not informed OEL – TWA*: Not informed TLV – TWA*: Not informed
 VEMP*: Not informed

For copper:

Above 1083 °C: copper melts.

Boiling point: 2567 °C

Risk of metal fume fever among persons exposed.

Exposure limits values (as Cu):

For fumes:

VME*: 0.2mg/m³ TLV – TWA*: 0.2mg/m³ MAK*: 0.1amg/m³ VEMP*: 0.2mg/m³ TWAEV*: 0.2mg/m³
 OEL – TWA*: 0.2mg/m³ WEL – TWA*: 0.2mg/m³ VLA – ED*: 0.2mg/m³ OEL – STEL*: 0.6mg/m³

For dusts:

VME*: 1mg/m³ TLV – TWA*: 1mg/m³ VLA – ED*: 1mg/m³ VLE*: 2mg/m³ VEMP*: 1mg/m³
 OEL – TWA*: 1mg/m³ TWAEV*: 1mg/m³ OEL – STEL*: 2mg/m³ WEL – TWA*: 1mg/m³
 WEL – STEL*: 2mg/m³

For copper and its compounds:

TLV – TWA*: 0.1img/m³ NIC MAK*: 1img/m³

For niobium:

Above 2476°C: niobium melts.

Boiling point: 4743°C

Exposure limits values:

VME*: Not informed TLV – TWA*: Not informed VEMP*: Not informed TWAEV*: Not informed
 OEL – TWA*: Not informed VLA – ED*: Not informed WEL*: Not informed
 OEL* dusts (Denmark): 5mg/m³ OEL* fumes (Denmark): 0.5mg/m³

For vanadium:

Above 1890 °C: vanadium melts.

Boiling point: 3380 °C

Irritation risk among persons exposed.

Exposure limits values for V₂O₅ in the dusts or fumes:

VME*: 0.05mg/m³ AGW*: 0.05amg/m³ TLV – TWA*: 0.05mg/m³ VLA – ED*: 0.05rmg/m³
 VEMP*: 0.05rmg/m³ NIC – TLV*: 0.01img/m³ OEL – TWA*: 0.05mg/m³ OEL – STEL*: 0.15mg/m³
 TWAEV*: 0.05mg/m³ WEL – TWA*: 0.05mg/m³

For titanium:

Above 1667 °C: titanium melts.

Boiling point: 3286 °C

Exposure limits values for TiO₂:

VME*: 10mg/m³ AGW*: Not informed TLV – TWA*: Not informed VLA – ED*: 10mg/m³
 VEMP*: 10mg/m³ TWA – BC*: 10mg/m³ OEL – TWA*: 10mg/m³ TWAEV*: 10mg/m³
 WEL – TWA*: 4r, 10img/m³

For molybdenum:

Above 2623 °C: molybdenum melts.

Boiling point: 4639°C

Exposure limits values (as Mo):

Soluble

VME*: 5mg/m³ TLV – TWA*: 0.5rmg/m³ MAK*: 5img/m³ OEL – TWA*: 5mg/m³
 OEL – STEL*: 10mg/m³ TWAEV*: 0.5rmg/m³ VEMP*: 5mg/m³ VLA – ED*: 5mg/m³
⁴VLA – EC*: 10mg/m³ WEL – TWA*: 5mg/m³ WEL – STEL*: 10mg/m³

Insoluble

OEL – TWA*: 10mg/m³ OEL – STEL*: 20mg/m³ VEMP*: 10mg/m³ VLA-ED*: 10mg/m³
 TWAEV* (and metal): 10img/m³, 3rmg/m³ MAK*: See TRGS 001 WEL – STEL*: 20mg/m³
 TLV – TWA*: 10img/m³, 3rmg/m³ ⁵VLA – EC*: 20mg/m³ WEL – TWA*: 10mg/m³

⁴ Proposal 2006

SSA/DSPA

For nickel:

Above 1455 °C: nickel melts.

Boiling point: 2913°C

Risk of nickel and nickel oxides exposure during welding.

Allergy: in case of welding, respiratory allergic reactions can occur among sensitised persons.

Nickel oxides have been identified as carcinogen.

Exposure limits values (as Ni):

VME*: 1mg/m³ TLV – TWA*: 1.5mg/m³ TRK*: 0.5mg/m³ VEMP*: 1mg/m³ TWAEV*: 0.2mg/m³
VLA – ED* (metal): 1mg/m³ VLA – ED* (oxides): 0.1mg/m³ WEL – TWA*: 0.5mg/m³

For oil:

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

Exposure limits values:

For carbon monoxide:

VME*: 55mg/m³ AGW*: 35mg/m³ TLV – TWA*: 29mg/m³ VEMP*: 40mg/m³ TWAEV*: 29mg/m³
OEL – TWA*: 29mg/m³ VLA – ED*: 29mg/m³ WEL – TWA*: 35mg/m³ WEL – STEL*: 232mg/m³

For carbon dioxide:

VME*: Not Informed AGW*: 9100mg/m³ TLV – TWA*: 9000mg/m³ VEMP*: 9000mg/m³
TWAEV*: 9000mg/m³ OEL – TWA*: 9000mg/m³ VLA – ED*: 9150mg/m³ VLA – EC*: 27400mg/m³
WEL – TWA*: 9150mg/m³ WEL – STEL*: 27400mg/m³

For benzene:

VME*: 3.25mg/m³ TRK*: 3.25mg/m³ TLV – TWA*: 1.6mg/m³ VMEP*: 3mg/m³
TWAEV*: 1.6mg/m³ OEL – TWA*: 3.3mg/m³ VLA – ED*: 3.25mg/m³ WEL – TWA*: 3.25mg/m³

For 1, 3-butadiene:

VME*: Not Informed TRK*: 11mg/m³ TLV – TWA*: 4.4mg/m³ VMEP*: 4.4mg/m³
TWAEV*: 4.4mg/m³ OEL – TWA*: 22.1mg/m³ VLA – ED*: 4.5mg/m³ WEL – TWA*: 22mg/m³

For formaldehyde:

VME*: 0.61mg/m³ MAK*: 0.62mg/m³ TLV* – Ceiling*: 0.37mg/m³ VECD/P*: 3mg/m³
TWAEV*: 1.5mg/m³ OEL – Ceiling*: 2.4mg/m³ VLA – EC*: 0.37mg/m³ WEL – TWA*: 2.5mg/m³
WEL – STEL*: 2.5mg/m³

For benzo (a) pyren:

Maximal Value (France): 150ng/m³ TRK*: 0.002mg/m³ PEL* (OSHA) = 0.2mg/m³ VEMP*: 0.005mg/m³
Ontario, Alberta: Not informed VLA – ED*: Not informed WEL*: Not informed

*Note:

WEL – TWA: Workplace Exposure Limit – Time-Weighted Average – United Kingdom

WEL – STEL: Workplace Exposure Limit – Short-Term Exposure – United Kingdom

TLV – TWA: Threshold Limit Value – Time-Weighted Average – United States

TLV – STEL: Threshold Limit Value – Short-Term Exposure – United States

TLV – Ceiling: Threshold Limit Value – Ceiling – United States

PEL: Permissible Exposure Limit – United States

NIC: Note of Intended Changes – United States

CMR: Carcinogenic, Mutagenic, toxic for the Reproduction

a: alveolar fraction; i: inhalable fraction; r: respirable fraction

VEMP: Valeur d'Exposition Moyenne Pondérée – Québec

VECD: Valeur d'Exposition de Courte Durée – Québec

VECD/P: Valeur plafond – Québec

TWAEV: Time-Weighted Average Exposure Values – Ontario

STEV: Short-Term Exposure Values – Ontario

CEV: Ceiling Exposure Values – Ontario

OEL – TWA: Occupational Exposure Limit – Time-Weighted Average – Alberta

OEL – STEL: Occupational Exposure Limit – Short-Term Exposure – Alberta

OEL – Ceiling: Occupational Exposure Limit – Ceiling – Alberta

VME: Valeur Moyenne d'Exposition – France

VLE: Valeur Limite d'Exposition – France

AGW: Arbeitsplatzgrenzwert – Germany since 2006.

⁵ Proposal 2006

SSA/DSPA

TRK: Technische Richtkonzentration – Germany until 2005.

MAK: Maximale ArbeitsplatzKonzentration – Germany until 2005.

With the coming into force of the GefStoffV dated 12/23/2004, the TRK-Values are inapplicable. Nevertheless, the TRK-Values or the MAK-Values of the old GefStoffV will be declared as an orientation value.

VLA-ED: Valor Límite Ambiental-Exposición Diaria – Spain

VLA-EC: Valor Límite Ambiental -Exposición de Corta duración – Spain

Exposure path:	Air.
Associated symptoms:	None.
Prevention:	During any processing of the product (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 worn**.
Hygiene:	Not applicable to product as it is.

9. PHYSICAL / CHEMICAL PROPERTIES:

Physical state:	Solid.
Colour:	Metallic aspect.
pH:	Not applicable.
Characteristic temperatures:	Not applicable.
Flash point:	Not applicable.
Oxidizing properties:	Not applicable.
Specific density:	About 7800 Kg/m ³ .
Solubility:	Not applicable, product not soluble in water.
Radioactivity:	None in all cases.

10. STABILITY / 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.

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

11. TOXICOLOGICAL INFORMATION:**Specific hazards:**

Related to protective oil, for products delivered oiled. See specific SDS of used protective oil.
Related to chromates, for products 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:**

Product insoluble in water. Material recycled from scraps.

13. DISPOSAL CONSIDERATIONS:**Treatment procedure prior to disposal/
destruction:**

Material recyclable and recycled from scraps.

**Used packaging cleaning, treatment,
destruction procedures:**

Destruction of packaging in accordance with applicable legislation

14. TRANSPORT INFORMATION:

Product not dangerous with regard to transport rules.

15. REGULATORY INFORMATION:**E.U. compulsory labeling:**

No labeling required.

Specific protection of workers:

Not applicable.

16. FURTHER INFORMATIONS:**Utilization:**

Steels for drawing, welding, etc.
Indoor or Outdoor Building
General Industry

Comments to the Users:

This safety data sheet has been drawn up in compliance with Directive EEC/91/155.

This sheet supplements but does not replace instruction manuals. The information contained herein is given to the best of our knowledge concerning the product 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 product is applied for purposes other than those for which it has been designed.

This safety data 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 product. 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 product, for which the user alone is responsible.