

# SAFETY DATA SHEET

Based on Regulation (EC) No. 1907/2006 (REACH) Article 31 and Annex II

## Zinc Aluminium Lead Alloys - Galvanizing

### 1. Identification of the substance/preparation and of the company/undertaking

#### 1.1 Identification of the substance or preparation:

Product name: Zinc Aluminium Lead Alloys - Galvanizing

Synonyms: zinc alloy for continuous galvanizing, CGG, ZnAl, ZnPb, ZnAlPb; zinc alloy for continuous galvanizing; zinc lead alloy

#### 1.2 Use of the substance/preparation:

Metal industry: continuous galvanization of steelplate, thermal galvanization, alloy formation

Industrial applications: sheet zinc for construction, welding materials, anodes for anti-corrosion protection

Metal industry: hot dip galvanizing

#### 1.3 Company/undertaking identification:

NYRSTAR Sales & Marketing AG

Tessinerplatz 7

CH-8002 Zürich

Tel: +41 44 745 81 00

Fax: +41 44 745 81 10

infoSDS@nyrstar.com

#### 1.4 Emergency telephone:

24h/24h:

+32 14 58 45 45 (BIG)

### 2. Hazards identification

#### DSD/DPD

Classified dangerous in accordance with Directives 67/548/EEC and 1999/45/EC

Limited evidence of a carcinogenic effect

May cause harm to the unborn child

#### Other hazards

The melting down of moist metal leads to explosion risk

Heated product causes burns

Caution! This substance is subject to exposure limits

Contains traces of a (possible) fertility impairing subst.

#### CLP

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Suspected of causing cancer.(H351)

May damage the unborn child.(H360D)

#### Other hazards

The melting down of moist metal leads to explosion risk

Heated product causes burns

Caution! This substance is subject to exposure limits

Contains traces of a (possible) fertility impairing subst.

### 3. Composition/information on ingredients

Name	CAS No EINECS/ELINC S	Conc.	Classification according to DSD/DPD	Classification according to CLP	Note
zinc, solid	7440-66-6 231-175-3	83.80%<C<10 0%			(2)
aluminium	7429-90-5 231-072-3	0%<C<15.90 %	F; R11 - 15	Water-react. 2; H261 Flam. Sol. 1; H228	(1)(2)

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Date of revision:

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87-253-16274 - GB

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lead	7439-92-1 231-100-4	0%<C<1.50%	Carc. Cat. 3; R40 Repr. Cat. 1; R61 Repr. Cat. 3; R62 Xn; R20/22 R33 N; R50-53	Carc. 2; H351 Repr. 1A; H360Df Acute Tox. 4; H332 Acute Tox. 4; H302 STOT RE 2; H373 Aquatic Acute 1; H400 Aquatic Chronic 1; H410	(1)(2)
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(1) For R-phrases and H-statements in full: see heading 16

(2) Substance with a Community workplace exposure limit

## 4. First aid measures

### 4.1 After inhalation:

After inhalation of fume:

Remove the victim into fresh air

Respiratory problems: consult a doctor/medical service

### 4.2 Skin contact:

In case of burns:

Wash immediately with lots of water (15 minutes)/shower

Remove clothing while washing

Do not tear off solidified product from the skin

Do not remove clothing if it sticks to the skin

Cover wounds with sterile bandage

Consult a doctor/medical service

If burned surface > 10%: take victim to hospital

### 4.3 Eye contact:

After contact with fume:

Rinse immediately with plenty of water for 15 minutes

Take victim to an ophthalmologist

### 4.4 After ingestion:

Not applicable

## 5. Fire-fighting measures

### 5.1 Suitable extinguishing media:

### 5.2 Unsuitable extinguishing media:

If molten: no water

### 5.3 Special exposure hazards:

On burning: formation of metallic fumes (lead oxides, zinc oxide)

In molten state: violent to explosive reaction with water (moisture)

### 5.4 Instructions:

Dilute toxic gases with water spray

In case of metal bath fire: add metal blocks

When cooling/extinguishing: no water in the substance

### 5.5 Special protective equipment for fire-fighters:

Gloves

Protective clothing

Heat/fire exposure: compressed air/oxygen apparatus

## 6. Accidental release measures

### 6.1 Personal precautions:

See heading 8.2

### 6.2 Environmental precautions:

See heading 13

### 6.3 Methods for cleaning up:

If melted: allow liquid to solidify before taking it up

Pick-up the material

Wash clothing and equipment after handling

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## 7. Handling and storage

### 7.1 Handling:

Avoid raising dust  
Observe very strict hygiene - avoid contact  
Keep away from naked flames/heat  
On (re)melting down: dry and preheat installation before use  
Add only dry material to the metal bath

### 7.2 Storage:

#### Safe storage requirements:

Store in a dry area  
Keep at temperature above dew point  
Meet the legal requirements

#### Keep away from:

(strong) acids

### 7.3 Specific use(s):

See information supplied by the manufacturer for the identified use(s)

## 8. Exposure controls/Personal protection

### 8.1 Exposure limit values:

#### 8.1.1 Occupational exposure:

If limit values are applicable and available these will be listed below.

#### Regulatory exposure limit (The Netherlands)

Lood	Time-weighted average exposure limit	- ppm 0.15 mg/m <sup>3</sup>
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#### Indicative exposure limit (the Netherlands)

Aluminium	Time-weighted average exposure limit	- ppm 10 mg/m <sup>3</sup>
Loodverbindingen anorganische (als Pb)(rook/stof)	Time-weighted average exposure limit	-(Pb) ppm 0.15 mg/m <sup>3</sup>
Zinkoxide (rook)	Time-weighted average exposure limit	- ppm 5 mg/m <sup>3</sup>

#### Limit Value (Belgium)

Aluminium(metaal)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 10 mg/m <sup>3</sup>
Lood (stof en rook)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 0.15 mg/m <sup>3</sup>
Lood, anorganisch, stof en rook, als Pb	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 0.15 mg/m <sup>3</sup>
Zinkoxide(rook)	Short time value	- ppm 10 mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 5 mg/m <sup>3</sup>
Zinkoxide(stof)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 10 mg/m <sup>3</sup>

#### TLV (USA)

Aluminium, Metal	Short time value	- mg/m <sup>3</sup>
	Time-weighted average exposure limit	1 R mg/m <sup>3</sup>
Lead	Short time value	- mg/m <sup>3</sup>
	Time-weighted average exposure limit	0.05 mg/m <sup>3</sup>

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Lead, inorganic compounds, as Pb	Short time value	-(Pb) mg/m <sup>3</sup>
	Time-weighted average exposure limit	0.05(Pb) mg/m <sup>3</sup>
Zinc oxide	Short time value	10 R mg/m <sup>3</sup>
	Time-weighted average exposure limit	2 R mg/m <sup>3</sup>

## Limit Value (France)

Aluminium(métal/pulvérent)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 5 fu/10 p mg/m <sup>3</sup>
Plomb métallique	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 0.1 mg/m <sup>3</sup>
Plomb composés,en Pb	Short time value	-(Pb) ppm -(Pb) mg/m <sup>3</sup>
	Time-weighted average exposure limit	-(Pb) ppm 0.1(Pb) mg/m <sup>3</sup>
Zinc(oxyde de,fumées)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 5 fumées mg/m <sup>3</sup>
Zinc(oxyde de,poussières)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 10 pouss. mg/m <sup>3</sup>

## Limit Value (UK)

Aluminium metal (inhalable and respirable dust)	Short time value	- ppm - mg/m <sup>3</sup>
	Time-weighted average exposure limit	- ppm 4 R/10 I mg/m <sup>3</sup>

## 8.1.2 Sampling methods:

Product name	Test	Number	Sampling method	Remarks
Aluminium	NIOSH	7013	filter	
Aluminum	OSHA	ID121		
Aluminum (Al)	NIOSH	8310		
Aluminum (as Al), Metal (Respirable Fraction)	OSHA	CSI		
Aluminum (as Al), Metal (Total Dust)	OSHA	CSI		
Aluminum (as Al), Soluble Salts	OSHA	CSI		
Aluminum (Elements)	NIOSH	7300	filter	
Aluminum (Elements, aqua regia ashing)	NIOSH	7301	filter	
Aluminum (Elements, hot block/HCl/HNO3 digestion)	NIOSH	7303	filter	
elemental lead and lead compounds except alkyl lead	NIOSH	7105	filter	
elemental lead and lead compounds except alkyl lead	NIOSH	7082	filter	
Lead	OSHA	ID 125G	filter	
Lead	OSHA	ID 121	filter	
Lead by ultrasound/ASV	NIOSH	7701	filter	
lead monoxide	OSHA	CSI		
Lead, Inorganic surface dusts (as Pb)	OSHA	ID 121	filter	
vary depending upon the compound: alumina	NIOSH	8013	filter	
Zinc	OSHA	CSI		
Zinc	NIOSH	7030		
Zinc	OSHA	ID 125		
Zinc	OSHA	ID 125G	filter	
Zinc	OSHA	ID 121	filter	
Zinc & Cpds (as Zn)	NIOSH	7030		

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Zinc (Elements on wipes)	NIOSH	9102	filter	
Zinc (Elements)	NIOSH	7300	filter	
Zinc (Elements, aqua regia ashing)	NIOSH	7301	filter	
Zinc (Elements, hot block/HCl/HNO <sub>3</sub> digestion)	NIOSH	7303	filter	
Zinc (Zn)	NIOSH	8005		
Zinc (Zn)	NIOSH	8310		
Zinc Oxide	OSHA	ID 121	filter	
Zinc Oxide	OSHA	ID 143	filter	
Zinc Oxide	NIOSH	7502	filter	
Zinc Oxide	NIOSH	7030		
Zinc Oxide (Respirable Fraction)	OSHA	CSI		
Zinc Oxide (Total Dust)	OSHA	CSI		
Zinc Oxide Fume	OSHA	ID 125		
Zinc Oxide Fume	OSHA	CSI		

## 8.2 Exposure controls:

### 8.2.1 Occupational exposure controls:

Measure the concentration in the air regularly

Carry operations in the open/under local exhaust/ventilation or with respiratory protection

Personal protective equipment:

#### a) Respiratory protection:

Dust production: dust mask with filter type P3

#### b) Hand protection:

Gloves

On heating: insulated gloves

- leather

#### c) Eye protection:

On (re)melting down: face shield

#### d) Skin protection:

Protective clothing

On (re)melting down: heatproof clothing

Protective clothing against molten metal splash (EN-ISO 9185)

Protective clothing for workers exposed to heat (EN-ISO 11612)

Safety shoes type S3

### 8.2.2 Environmental exposure controls:

See headings 6.2, 6.3 and 13

## 9. Physical and chemical properties

### 9.1 General information:

Physical form	Solid
	Metal
	Physical state depending on the production process
Odour	Odourless
Colour	Metallic blue-grey

### 9.2 Important health, safety and environmental information:

Boiling point	907 °C
Flashpoint	Not applicable
Relative density	7.1
Solubility in solvents	Soluble in acids

### 9.3 Other information:

Melting point	420 °C
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## 10. Stability and reactivity

### 10.1 Conditions to avoid:

#### Possible fire hazard

heat sources

#### Stability

Stable under normal conditions

#### Reactions

In molten state: violent to explosive reaction with water (moisture)

Oxidizes slowly in moist air

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## 10.2 Materials to avoid:

(strong) acids

## 10.3 Hazardous decomposition products:

Reacts with (some) acids: release of highly flammable gases/vapours (hydrogen)

On burning: formation of metallic fumes (lead oxides, zinc oxide)

## 11. Toxicological information

### 11.1 Acute toxicity:

No (test) data on the mixture available.

### 11.2 Chronic toxicity:

Caution! This substance is subject to exposure limits

The chronic toxicity (carc - mut - reprotox) of the component(s) relates only to the substance in finely divided state and/or in molten state

No certainty about human carcinogenic properties

Not listed in mutagenicity class (EC, MAK)

Hazardous to the foetus

Contains traces of a (possible) fertility impairing subst.

zinc, solid

MAK - Schwangerschaft Gruppe	C
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lead

EC carc cat	3
EC repr cat	1;3
IARC - classification	2B
Listed in SZW - List of reprotoxic substances (fertility): category	Possible risk of impaired fertility
Listed in SZW - List of reprotoxic substances (development): category	Hazardous to the foetus
Listed in SZW - List of reprotoxic substances (breast feeding): category	May cause harm to breastfed babies
TLV - Carcinogen	A3
MAK - Krebserzeugend Kategorie	2
MAK - Keimzellmutagen Kategorie	3A
MAK - Schwangerschaft Gruppe	-

aluminium

TLV - Carcinogen	A4
MAK - Schwangerschaft Gruppe	D

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EC carc cat	3
EC repr cat	1
Listed in SZW - List of reprotoxic substances (fertility): category	Possible risk of impaired fertility
Listed in SZW - List of reprotoxic substances (development): category	Hazardous to the foetus
TLV - Carcinogen	A3(Pb)
MAK - Krebserzeugend Kategorie	2
MAK - Keimzellmutagen Kategorie	3A
MAK - Schwangerschaft Gruppe	-
CLP carc cat	category 2
CLP repr cat	category 1A

### 11.3 Acute effects/symptoms:

#### Inhalation:

AFTER INHALATION OF DUST:

Irritation of the nasal mucous membranes

Dry/sore throat

Coughing

AFTER INHALATION OF FUME:

Feeling of weakness

Metal fume fever

Vomiting

Nausea

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**Skin contact:**

IF MELTING:  
Burns

**Eye contact:**

IF MELTING:  
Burns

**Ingestion:**

No data available

**11.4 Chronic effects:**

## 12. Ecological information

**12.1 Ecotoxicity:**

lead

LC50 fishes

species	value	duration (h)	remarks
CHANNNA PUNCTATUS	19 mg/l	96 h	

EC50 Daphnia

species	value	duration (h)	remarks
DAPHNIA MAGNA	0.1 mg/l	504 h	

EC50 other aquatic organisms

species	value	duration (h)	remarks
SELENASTRUM CAPRICORNUTUM	0.14 mg/l		LEAD ION

**12.2 Mobility:**

Volatile organic compounds (VOC)

Solubility in/reaction with water

Not applicable

Literature reports: insoluble in water

Substance sinks in water

**12.3 Persistence and degradability:**

BOD20

Biodegradability: not applicable

Not applicable

**12.4 Bioaccumulative potential:****12.5 Results of PBT assessment:**

Not applicable, based on available data

**12.6 Other adverse effects:**

Not dangerous for the ozone layer (1999/45/EC)

## 13. Disposal considerations

**13.1 Provisions relating to waste:**

Waste material code (Directive 2008/98/EC, decision 2001/118/EC)

11 01 99 : wastes not otherwise specified

Depending on branch of industry and production process, also other EURL codes may be applicable

Can be considered as non hazardous waste according to Directive 2008/98/EC

**13.2 Disposal methods:**

Recycle/reuse

Remove waste in accordance with local and/or national regulations

Do not discharge into surface water (2000/60/EC, Council decision 2455/2001/EC, O.J. L331 of 15/12/2001)

**13.3 Packaging/Container:**

No available data

## 14. Transport information

**ADR**

Transport	Not subject
UN number	-
Class	

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Packing group	
Hazard identification number	
Classification code	
Labels	
Environmentally hazardous substance mark	

## RID

Transport	Not subject
UN number	-
Class	
Packing group	
Classification code	
Labels	
Environmentally hazardous substance mark	

## ADNR

Transport	Not subject
UN number	-
Class	
Packing group	
Classification code	
Labels	
Environmentally hazardous substance mark	

## IMO

Transport	Not subject
UN number	-
Class	
Packing group	
Labels	
Marine pollutant	
Environmentally hazardous substance mark	

## ICAO

Transport	Not subject
UN number	-
Class	
Packing group	
Labels	
Environmentally hazardous substance mark	

## 15. Regulatory information

### 15.1 EU Legislation:

#### DSD/DPD

This preparation, although classified dangerous in accordance with Directive 1999/45/EC, does not require a label because of the form in which it is placed on the market (1999/45/EC, Article 12, (2))

#### CLP

This substance/mixture, although classified dangerous, does not require a label because of the form in which it is placed on the market (Regulation (EC) No 1272/2008 Annex I chapter 1.3.4)

### 15.2 National provisions:

#### The Netherlands

Waterbezwaarlijkheid (for NL)

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Waste identification other lists of waste materials

LWCA (the Netherlands): KGA category 05

#### Germany

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# Zinc Aluminium Lead Alloys - Galvanizing

TA-Luft

lead: TA-Luft Klasse 5.2.2/II

aluminium: TA-Luft Klasse 5.2.1

WGK

-

Classification non-water polluting based on the components in compliance with  
Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 4)

## 16. Other information

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question.

Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult your BIG licence agreement for details.

(\*) = INTERNAL CLASSIFICATION (NFPA)

PBT-substances = persistent, bioaccumulative and toxic substances

DSD Dangerous Substance Directive

DPD Dangerous Preparation Directive

CLP (EU-GHS) Classification, labelling and packaging (Globally Harmonised System in Europe)

Full text of any R-phrases referred to under headings 2 and 3:

R11	Highly flammable
R15	Contact with water liberates extremely flammable gases
R20/22	Also harmful by inhalation and if swallowed
R33	Danger of cumulative effects
R40	Limited evidence of a carcinogenic effect
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R61	May cause harm to the unborn child
R62	Possible risk of impaired fertility

Full text of any H-statements referred to under headings 2 and 3:

H228	Flammable solid.
H261	In contact with water releases flammable gases.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H351	Suspected of causing cancer.
H360D	May damage the unborn child.
H360Df	May damage the unborn child. Suspected of damaging fertility.
H373	May cause damage to organs through prolonged or repeated exposure if swallowed
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Full text of any classes referred to under headings 2 and 3:

Acute Tox.	Acute toxicity
Aquatic Acute	Hazardous to the aquatic environment - acute
Aquatic Chronic	Hazardous to the aquatic environment - chronic
Carc.	Carcinogenicity
Flam. Sol.	Flammable solid
Repr.	Reproductive toxicity
STOT RE	Specific target organ toxicity - repeated exposure
Water-react.	Substance or mixture which in contact with water emits flammable gas