According to EC-Regulation 1907/2006 (REACH)

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Trade name
Zinc
Product no.
-
REACH registration number
01-2119467174-37-XXXX
Other means of identification
Synonyms: zinc, solid in massive state, zinc cathodes, SSHG, Z1, SHG (Special High Grade)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses of the substance or mixture
IU01: Zinc metal production RLE (GESZn 0)
IU03: Storage of ingots-slabs in warehouses (GESZn 1)
IU04: Production of chemicals (pyro) (GESZn 3)
IU07: Melting, alloying and casting (GESZn 1)
IU08: Cathodic protection - sacrifical anodes (GESZn 1)
IU09: Downstream use of zinc-based sacrifical anodes (GESZn 8)
IU10: Extraction of PM (Parkes process) (GESZn 5)
IU11: Zinc casting / granules, pellets, prills, … (GESZn 1, GESZn 6)
IU12: Zinc sheet casting and rolling (GESZn 1, GESZn 6)
IU13: Wire and rods manufacturing (GESZn 1, GESZn 6)
IU14: Downstream use of Zn based wire for metal spraying (GESZn 8)
IU15: Component for soldering/brazing/welding products (GESZn 1, GESZn 6)
IU16: Downstream use of Zinc based brazing/soldering products (GESZn 8)
IU17: Strips and coins manufacturing (GESZn 1, GESZn 6)
IU18: Batteries calots, cans manufacturing (GESZn 1, GESZn 6)
IU19: Zinc (pure or alloyed) powder manufacturing (GESZn 2)
IU20: Passivated zinc powder manufacturing (pure or alloyed) (GESZn 2)
IU30: Brass manufacturing (GESZn 1)
IU31: Use of brass casts for transformation into semi-products (GESZn 6)
IU32: Use of brass containing products (ESZn 8)
IU33: Die-casting alloys manufacturing (GESZn 1)
IU34: Use of die-casting ingots (GESZn 6)
IU35: Manufacturing of Zinc containing Al-alloys (GESZn 1)
IU36: Use of zinc containing Al alloys (GESZn 6)
IU37: General hot dip galvanizing (GESZn 5)
IU38: Continuous hot dip galvanizing (GESZn 5)
IU39: Electrogalvanizing (GESZn 5)
IU40: Electroplating (GESZn 5)
IU41: Production of "targets by (EB) PVD or other sputtering techniques (GESZn 5)
IU42: Use of galvanized goods Generic consumer/environment
Uses advised against
-

1.3. Details of the supplier of the safety data sheet

Company and address
Boliden Commercial
Box 750
SE-101 35 Stockholm
Sweden

Tel +46 8 610 15 00

Fax +46 8 31 55 45

Contact person

E-mail
info.market@boliden.com

SDS date
01-06-2015

SDS Version
1.0

1.4. Emergency telephone number

999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service). See section 16.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

This product (zinc metal in massive form) is not classified as dangerous.

2.2. Label elements

Hazard pictogram(s)
-

Signal word
-

Hazard statement(s)
-

Safety statement(s)	General	-
	Prevention	-
	Response	-
	Storage	-
	Disposal	-

Identity of the substances primarily responsible for the major health hazards
-

2.3. Other hazards

-

Additional labelling
-

Additional warnings
-

VOC
-

SECTION 3: Composition/information on ingredients

3.1. Substances

NAME:	zinc
IDENTIFICATION NOS.:	CAS-no: 7440-66-6 EC-no: 231-175-3 REACH-no: 01-2119467174-37 Index-no: 030-001-00-1
CONTENT:	>98,5%, typical concentration >=99,995%
CLP CLASSIFICATION:	NA

(*) See full text of H-phrases in chapter 16. Occupational exposure limits are listed in section 8, if these are available.

3.2. Mixtures

-

Other informations

Impurity: <=0,0030% Pb, EC 231-100-4
Lead can be as high as 1.5 % for secondary zinc grades

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Zinc in massive form is not hazardous. During production and use the following hazardous derivates may be formed: Respirable zinc-bearing particles and soluble zinc compounds.
General advice: Get medical attention if any discomfort develops. Show this sheet to doctor. General advice: Get medical attention if any discomfort develops.

Inhalation

Zinc metal is not acutely poisonous by inhalation. Large amounts of dust can cause irritation in respiratory ducts. In this case move the patient to fresh air. Get medical attention if discomfort persists. Welding and galvanizing (temperature >930°C) combined with poor industrial hygiene practice can expose to metal fume fever ("zinc fever") which is caused by zinc oxide fumes formed in high temperatures. Symptoms can be fever, nausea, rigor, vomiting, stomach pain, muscle pain and in some cases hallucinations or incoherence. Symptoms will pass within 24 hours causing no permanent effects. Treat symptomatically if needed: removal from exposure, bed rest, oral hydration, medication against fever (ibuprofen, salicylates). In severe cases seek for medical attention, show this sheet to doctor.

Skin contact

Zinc itself is not a skin irritant. Exposure to zinc oxide can cause eczema. Use general hygiene measure for contact with material: wash with soap and warm water. In case of contact with molten product cool rapidly with water and seek immediate medical attention. Never attempt to remove molten product from skin because skin will tear easily.
Cuts or abrasions should be treated promptly with thorough cleansing.

Eye contact

Rinse with water for 15 minutes, consult a doctor if pain persists. Do not rub eyes. Remove any contact lenses. If the patient get tile or splashes of melted metal in the eye, the patient must be taken to a doctor immediately.

Ingestion

Not a normal route of entry. Zinc is an essential nutrient.In case of significant oral intake rinse mouth and give water to drink if the patient is conscious. Do not induce vomiting. Seek medical attention in case of any discomfort.

4.2. Most important symptoms and effects, both acute and delayed

Metal fume fever (Zinc fever): fever, nausea, rigor, vomiting, stomach pain, muscle pain and in some cases hallucinations or incoherence Ingestion (acute): nausea, vomiting, lack of appetite, stomach pain, diarrhea, headache Ingestion (chronic): Ingesting doses of zinc >100 mg/day for prolonged periods interferes with copper metabolism causind low blood copper levels, RBC microctosis and impaired immunity.
Larger doses (200-800 mg/day) ingested for prolonged periods can cause anorexia, vomiting and diarrhea.

4.3. Indication of any immediate medical attention and special treatment needed

Supportive care and removal from source is usually adequate treatment for zinc toxicosis. In case of severe metal fume fever ("zinc fever") intravenous steroid or inhalated bronchodilatators (for wheezing) might be required. Oxygen therapy in case of hypoxemia.

Information to medics

Bring this safety data sheet.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Material is not flammable. Recommended: alcohol-resistant foam, carbonic acid, powder, water mist.
Water jets should not be used, since they can spread the fire.
Never use water in presence of molten metal. Water expands explosively in contact with molten / liquid metal.

5.2. Special hazards arising from the substance or mixture

Respirable dust.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact.
Prevent the water/foam from extinguishing the fire to reach ground water, waterways, water catchment, surface water, conduit, or water treatment plant.

SECTION 6: Accidental release measures

Zinc in massive form is not hazardous. During production and some uses hazardous material (*e g* zinc-containing respirable particles and soluble compounds) may be formed and accidental release of these is considered.

6.1. Personal precautions, protective equipment and emergency procedures

Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Avoid breathing dust. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Ch. 8)

6.2. Environmental precautions

Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

6.3. Methods and material for containment and cleaning up

In case of molten material: Allow to solidify before cleaning. Move containers from spill area. Vacuum or sweep up material and place in a designated, labelled waste container. Avoid creating dusty conditions.

6.4. Reference to other sections

See section on “Disposal considerations ” with regard to the handling of waste. See section on 'Exposure controls/personal protection' for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

See section on 'Exposure controls/personal protection' for information on personal protection.
Zinc is not classified in massive forms and no protective measures are needed for safe handling. Zinc ingots must not be allowed to get wet or damp, or be smeared with other substances, quality and identification marks must not be damaged and ingots must not be allowed to move during transportation.

Zinc ingots may contain water or moisture in hair cracks or hollows. To prevent splashes of molten metal or explosion, ingots must be carefully dried before being fed into the smelter. Persons working in the smelting process and at work stations in the immediate vicinity should use appropriate protective clothing. In case of smoke from melted product: Avoid inhalation. Avoid dust formation.

7.2. Conditions for safe storage, including any incompatibilities

Always store in containers of the same material as the original.
Zinc ingots must be stored in a clean, dry, well-ventilated space so that they do not become smeared with other substances and are not contaminated by water. Storage in close proximity to acids, alkalis or oxidants should be avoided. Avoid storing with acids, bases and oxidizers. Finely pulverized substance mixed with air may cause dust explosion.

Storage temperature

No data available.

7.3. Specific end use(s)

This product should only be used for applications described in Section 1.2

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL

Zinc oxide, fume or respirable dust
Long-term exposure limit (8-hour TWA reference period): - ppm | 5 mg/m3
Short-term exposure limit (15-minute reference period): - ppm | 10 mg/m3

DNEL / PNEC

DNEL (zinc): 0.83 mg Zn/kg bw/day - Exposure: Oral - Remarks: soluble Zn
DNEL (zinc): 0.83 mg Zn/kg bw/day - Exposure: Oral - Remarks: insoluble Zn
DNEL (zinc): 8.3 mg Zn/kg bw/day - Exposure: Dermal - Remarks: soluble Zn
DNEL (zinc): 83 mg Zn/kg bw/day - Exposure: Dermal - Remarks: insoluble Zn
DNEL (zinc): 1 mg Zn/m3 - Exposure: Inhalation - Remarks: soluble Zn, worker
DNEL (zinc): 5 mg Zn/m3 - Exposure: Inhalation - Remarks: insoluble Zn, worker
DNEL (zinc): 1.3 mg Zn/m3 - Exposure: Inhalation - Remarks: soluble Zn, consumer
DNEL (zinc): 2.5 mg Zn/m3 - Exposure: Inhalation - Remarks: insoluble Zn, consumer

PNEC (zinc): 21 µg/L - Exposure: Freshwater - Remarks: added value, Zn ion
PNEC (zinc): 6 µg/L - Exposure: Marine water - Remarks: added value, Zn ion

PNEC (zinc): 52 µg/L - Exposure: Sewage Treatment Plant - Remarks: Zn ion
PNEC (zinc): 118 mg/kg d.w. - Exposure: Freshwater sediment - Remarks: added value, Zn ion
PNEC (zinc): 57 mg/kg d.w. - Exposure: Marine water sediment - Remarks: added value, Zn ion
PNEC (zinc): 36 mg/kg d.w. - Exposure: Soil - Remarks: added value, Zn ion

8.2. Exposure controls

Avoid raising dust. Keep away from naked flames/heat.

General recommendations

Observe general occupational hygiene.

Exposure scenarios

If there is an appendix to this safety data sheet, the indicated exposure scenarios must be complied.

Exposure limits

Trade users are covered by the rules of the working environment legislation on maximum concentrations for exposure. See work hygiene threshold values above.

Appropriate technical measures

Take ordinary precautions when using the product. Avoid inhalation of gas or dust. Process enclosure where applicable. Local exhaustion ventilation on furnaces and other work areas with potential dust generation, dust capturing and removal techniques.

Hygiene measures

Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face.

Measures to avoid environmental exposure

No specific requirements.

Individual protection measures, such as personal protective equipment

-

Generally

Only CE-marked personal protection equipment should be used.

Respiratory Equipment

With normal handling no respiratory personal protection is necessary. If risk for exceedance of OEL/ DNEL use dust filter mask.

Dust filter-halfmask:
P1 (efficiency 75%)
P2 (efficiency 90%)
P3 (efficiency 95%)

Dust filter – full mask:
P1 (efficiency 75%)
P2 (efficiency 90%)
P3 (efficiency 97,5%)

Skin protection

Protective clothing. On heating: heatproof clothing, protective clothing against molten metal splash. Protective clothing for workers exposed to heat. Safety shoes.

Hand protection

Wearing gloves is compulsory. On heating: insulated gloves.

Eye protection

Safety glasses are optional. On melting: face shield.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Colour	Odour	pH	Viscosity	Density (g/cm3)
Solid	Silver	None	-	-	7,1

Phase changes

Melting point (°C)	Boiling point (°C)	Vapour pressure (mm Hg)
416		-

Data on fire and explosion hazards

Flashpoint (°C)	Ignition (°C)	Self ignition (°C)
-	-	-

Explosion limits (Vol %)	Oxidizing properties
-	-

Solubility

Solubility in water	n-octanol/water coefficient
Zinc in massive form has very limited solubility.	-

9.2. Other information

Solubility in fat	Additional information
-	N/A

SECTION 10: Stability and reactivity

10.1. Reactivity
React with oxidants e.g. ammoniumnitrate, nitric acid, pottasium chlorate. Zinc dust liberates hydrogen gas in contact with oxygen and water. Forms ”white rust” in humid air

10.2. Chemical stability
The product is stable under the conditions, noted in the section on “Handling and storage”.

10.3. Possibility of hazardous reactions
In molten state: violent to explosive reaction with water (moisture). Oxidizes slowly in moist air.

10.4. Conditions to avoid
To avoid white rust on galvanized steel the new pieces of galvanized equipment should be kept dry and well ventilated until the surface has passivated.

10.5. Incompatible materials
Strong acids, strong bases, strong oxidizing agents, and strong reductants agents.

10.6. Hazardous decomposition products
The product is not degraded when used as specified in section 1. Reacts with some acids forming hydrogen.On burning: zinc oxide fumes.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Substance	Species	Test	Route of exposure	Result
zinc	Rat	LD50	Oral	>2000 mg/kg
zinc	Rat	LC50	Inhalation	>5.4 mg/L/4h

Skin corrosion/irritation
Data on substance: zinc
Result: Not irritant

Serious eye damage/irritation
Data on substance: zinc
Result: Not irritant

Respiratory or skin sensitisation
Data on substance: zinc
Result: Not sensitizing

Germ cell mutagenicity
Data on substance: zinc
No adverse effect observed.

Carcinogenicity
Data on substance: zinc
No adverse effect observed.

Reproductive toxicity
Data on substance: zinc
No adverse effect observed.

STOT-single exposure
Data on substance: zinc
Result: No evidence

STOT-repeated exposure
Data on substance: zinc
Result: No evidence

Aspiration hazard
No data available.

Long term effects
No special

SECTION 12: Ecological information

12.1. Toxicity

Substance	Species	Test	Test duration	Result
zinc	Daphnia	EC50	48 h	0.413 mg Zn++/l, pH <7
zinc	Algae	EC50	72 h	0.136 mg Zn++/l, pH >7-8.5
zinc	Daphnia	EC50	48 h	11.5 mg Zn/l, pH <7
zinc	Algae	EC50	72 h	15.1 mg Zn/l, pH >7-8.5

12.2. Persistence and degradability

Substance	Biodegradability	Test	Result
zinc	not applicable	No data available	No data available

12.3. Bioaccumulative potential

Substance	Potential bioaccumulation	LogPow	BFC
zinc	No	No data available	No data available

12.4. Mobility in soil
In the CSR a solids-water partitioning coefficient of 158,5 kl/l (log value 2,2) was applied for zinc in soils (CSR zinc 2010)

12.5. Results of PBT and vPvB assessment
The PBT and vPvB criteria do not apply to inorganic substances.

12.6. Other adverse effects
No special

SECTION 13: Disposal considerations

13.1. Waste treatment methods
This product is not covered by the regulations on dangerous waste.

Waste
EWC code
17 04 04

Specific labelling
-

Contaminated packing
Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14: Transport information

Not listed as dangerous goods under ADR and IMDG regulations.

14.1 – 14.4
ADR/RID

14.1. UN number
14.2. UN proper shipping name
14.3. Transport hazard class(es)
14.4. Packing group
Notes
Tunnel restriction code

IMDG

UN-no.
Proper Shipping Name
Class
PG*
EmS
MP**
Hazardous constituent

IATA/ICAO

UN-no.

Proper Shipping Name

Class

PG*

14.5. Environmental hazards

-

14.6. Special precautions for user

-

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No data available

(*) Packing group

(**) Marine pollutant

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

Restrictions for application

-

Demands for specific education

-

Additional information

-

Sources

EC regulation 1907/2006 (REACH)
Directive 2000/532/EC
EC Regulation 1272/2008 (CLP)

15.2. Chemical safety assessment

No

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

-

The full text of identified uses as mentioned in section 1

-

Other symbols mentioned in section 2

-

Other

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
A change (in proportion to the last essential change (first cipher in SDS version)) is marked with a blue triangle.

List of uses for which a Generic Exposure Scenario (GES) is provided as Annex

Number	Sector	Uses	Code
0	Zinc metal production	Manufacture Substance	GES_{Zn} 0
1	Formulation step: melting, alloying and casting in massive pieces	Formulation general	GES_{Zn} 1
2	Formulation step: melting, alloying manufacture of powders		GES_{Zn} 2
3	First tier applications	Manufacturing of other zinc compounds	GES_{Zn} 3
4		Laboratory reagent	GES_{Zn} 4
5		Use of molten zinc	GES_{Zn} 5
6		Transformation of massive zinc	GES_{Zn} 6
7		Use of zinc powders	GES_{Zn} 7
8	Second tier applications	DU of massive pieces of zinc	GES_{Zn} 8
9		DU of preparations containing zinc powder	GES_{Zn} 9

Emergency numbers

Belgium: 070 - 245 245
Austria: Poison Control Centre Emergency helpline +43 1 406 43 43, 112
Portugal: Em caso de intoxicacao, ligue 808 250 143
Czech Republic: Toxikologické informační středisko Telefon: +420 224 919 293, +420 224 915 402
Estonia: 112, 16662, ((+372) 626 93 90)
Lithuania: Visuomenės sveikatos centrams +370 5 236 20 52 arba +370 687 53378
Italy: Centro antiveleni di Roma - Policlinico Umberto I tel. 06-49978000
Spain: Servicio de Información Toxicológica Teléfono: + 34 91 562 04 20 (solo emergencias toxicológicas) Información en español (24h/365 días)
Sweden: 112, 08-331231 (vardagar kl 9-17)
United Kingdom: 999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service)
Denmark: Kontakt Giftlinien på tlf.nr.: 82 12 12 12 (åbent 24 timer i døgnet).
Germany: Giftnotruf Berlin, Emergency telephone: +49 30 19240 (Tag und Nacht)
Finland: 09-4711/Myrkytystietokeskus tai suora numero 09-471977 Myrkytystietokeskus/HUS, Tukholmankatu 17, 00029 HUS (Helsinki) 112
Norway: Giftinformasjonssentralen på tlf.nr.: 22 59 13 00, 113
France: ORFILA (INRS) : + 33 (0)1 45 42 59 59. 24 heures sur 24 et 7 jours sur 7
Hungary: Telefon: 06-80-20-11-99
Iceland: Neyðarlínan: Sími 112. Eitrunarmiðstöð Landsspítalans. Sími: 543 2222.
Netherlands: 30-2748888
Bulgaria: +359 2 9154 409
Greece: +30 10 779 3777
Ireland: +353 1 8379964
Latvia: +371 704 2468
Malta: 2425 0000
Poland: +48 58301 65 16 / +48 58 349 2831
Romania: +40 21 3183606
Slovakia: +421 2 54 77 4166
Slovenia: + 386 41 650500

Date of last essential change
(First cipher in SDS version)

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Date of last minor change
(Last cipher in SDS version)

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