

[In accordance with the criteria of Regulation No 1907/2006 (REACH) as amended]

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

1.1. Product identifier

Trade name: ZINC ORIGINAL – TYPE Z1, Z2, Z3
Chemical name: zinc
CAS number: 7440-66-6
Registration number: 01-2119467174-37-0036

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

Relevant identified uses:

Zinc metal production RLE.
Zinc metal production ISF.
Storage of ingots-slabs in warehouses.
Production of chemicals (pyro).
Production of chemicals (hydro).
Additive for production of inorganic catalysts.
Melting, alloying and casting.
Cathodic protection - sacrificial anodes.
Downstream use of zinc-based sacrificial anodes.
Extraction of PM (Parkes process).
Zinc casting / granules, pellets, prills.
Zinc sheet casting and rolling.
Wire and rods manufacturing.
Downstream use of Zn based wire for metal spraying.
Component for soldering/brazing/welding products.
Downstream use of zinc based brazing/soldering products.
Strips and coins manufacturing.
Batteries ballots, cans manufacturing.
Zinc (pure or alloyed) powder manufacturing.
Passivated zinc powder manufacturing (pure or alloyed).
Use of active powders for batteries.
Use of zinc powders, pure or slightly alloyed, for formulation of paints, coatings, and inks.
Use of zinc powder based paints, coatings and inks
Use of zinc powder for mechanical plating.
Use of zinc powder as reducing reagent.
Use of (alloyed) Zn powder as corrosion inhibitor for lubricants.
Use of zinc powder (pure or alloyed) in the manufacture of diamond tools.
Use of zinc powder (pure or alloyed) in the manufacture of friction lining.
Use of zinc powder (pure or alloyed) in the manufacture of carbon brushes.
Brass manufacturing.
Use of brass casts for transformation into semi-products.
Use of brass containing products.
Die-casting alloys manufacturing.
Use of die-casting ingots.
Manufacturing of zinc containing Al-alloys.
Use of zinc containing Al alloys.
General hot dip galvanizing.
Continuous hot dip galvanizing.
Electro galvanizing.
Electroplating.
Production of targets by (EB) PVD or other sputtering techniques.
Use of galvanized goods.

Uses advised against:

Not determined.

1.3. Details of the supplier of the safety data sheet

Manufacturer: Zakłady Górniczo-Hutnicze „Bolesław” Spółka Akcyjna
Address: ul. Kolejowa 37, 32-332 Bukowno, Poland
Telephone/Fax number: +48 32 295 51 00/+48 32 295 50 00
E-mail address for a competent person responsible for sds: biuro@thetaconsulting.pl

1.4. Emergency telephone number

112, Factory dispatcher: +48 32 296 55 80 (on call 24h)

Section 2: Hazards identification

2.1. Classification of the substance or mixture

Substance is not classified as hazardous for a human health and life nor for the environment.

2.2. Label elements

Hazard symbols and signal words

None.

Hazard statements

None.

Precautionary statements

None.

2.3. Other hazards

Substance does not meet the PBT or vPvB criteria in accordance with the Annex XIII of the REACH Regulation. The substance has not been included in the list established in accordance with Article 59 (1) for having endocrine disrupting properties, or as substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605.

Section 3: Composition/information on ingredients

3.1. Substances

Chemical name: zinc
Synonyms: electrolytic zinc, SHG zinc, zinc metallic, zinc, high purity zinc, electrolytic zinc SHG, zinc special high grade, zinc technically pure
Impurities present 0,005% max.
Range: 99,995%
CAS number: 7440-66-6
EINECS number: 231-175-3
Registration number: 01-2119467174-37-0036

Section 4: First aid measures

4.1. Description of first aid measures

Skin contact: wash out skin with plenty of water with soap. If irritation appears, consult a doctor.

Eye contact: immediately wash out with plenty of water with the eyelid hold wide open, for 10-15 min. Remove any contact lenses. Obtain medical attention if necessary.

Ingestion: exposure in this way usually does not occur.

Inhalation: exposure in this way usually does not occur.

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

As a result of direct contact with metallic zinc (supplied in the form of slabs, ingots, jumbo blocks) adverse health effects were not observed. Possible adverse reactions in contact with skin, eyes or inhalation of zinc compounds, or the processed product in the course of processing.

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

Physician makes a decision regarding further medical treatment after thoroughly examination of the injured.
Symptomatic treatment.

Section 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: metallic zinc is not flammable. Use extinguishing measures that are appropriate to the environment.

Unsuitable extinguishing media: water jet – risk of the propagation of the flame.

5.2. Special hazards arising from the substance or mixture

May produce toxic fumes of zinc and zinc oxides if burning. Do not inhale combustion products – it can be dangerous for health.

5.3. Advice for firefighters

Personal protection typical in case of fire. Do not stay in the fire zone without self-contained breathing apparatus and protective clothing resistant to chemicals. Collect used extinguishing agents.

Section 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Limit the access for the outsiders into the breakdown area, until the suitable cleaning operations are completed. In case of release of large amounts, it is necessary to take appropriate steps to prevent it from spreading into the environment. Use appropriate personal protective equipment.

6.2. Environmental precautions

In case of release of large amounts of the substance, it is necessary to take appropriate steps to prevent it from spreading into the environment. Do not let the substance to get through the surface or ground water, soil, sewage system, wells, basements etc.

6.3. Methods and material for containment and cleaning up

Pick it up mechanically. Material treat like a waste or reuse it.

6.4. Reference to other sections

Appropriate conduct with waste product – section 13.

Appropriate personal protective equipment – section 8.

Section 7: Handling and storage

7.1. Precautions for safe handling

Handle in accordance with good occupational hygiene and safety practices. Ensure adequate ventilation. Before break and after work wash carefully hands. Use appropriate personal protective equipment.

7.2. Conditions for safe storage, including any incompatibilities

Keep only in a cool, dry and well-ventilated place. Protect against fire sources, heat, water and moisture. Protect from water and moisture. Keep away from inorganic acids and bases.

7.3. Specific end use(s)

Every relevant identified use is given in subsection 1.2.

Particular identified end uses of zinc metallic include different type of industry:

- in zinc industry to production slabs, ingots, blocks, alloys, die-casts, ball electrodes, zinc dust.
- in metal industry used as anticorrosive and decorative coats.
- in chemical industry used as Chinese white, to rubber production.
- in pharmaceutical-cosmetic industry in the form of zinc oxide as filling.

Section 8: Exposure controls/personal protection

8.1. Control parameters

For substance are not defined occupational exposure limit values at working place in European Union and Great Britain.

Legal Basis: Commission Directive 2000/39/EC, 2006/15/EC, 2009/161/EU, 2017/164/EU, 2019/1831/EU.

Legal Basis: EH40/2005 Workplace exposure limits. Fourth Edition 2020.

Please check any national occupational exposure limit values in your country.

DNEL values

Exposure way	Exposure scheme	DNEL (workers)
inhalation	Long-term systemic effects	5 mg/m ³
dermal	Long-term systemic effects	83 mg/kg bw/d
Exposure way	Exposure scheme	DNEL (general population)
inhalation	Long-term systemic effects	2,5 mg/m ³
dermal	Long-term systemic effects	83 mg/kg bw/d
oral	Long-term systemic effects	0,83 mg/kg bw/d

PNEC values

PNEC	Value	Factor
freshwater	20,6 µg/l	1
marine water	6,1 µg/l	1
freshwater sediment	117,8 mg/kg dry weight	1
marine water sediment	56,5 mg/kg dry weight	1
soil	35,6 mg/kg dry weight	1
STP	100 µg/l	1

8.2. Exposure controls

Appropriate engineering controls

Use the product in accordance with good occupational hygiene and safety practices. When handlings do not eat, drink or smoke. Before break and after work carefully wash hands. Ensure adequate generally ventilation and/or locally.

Individual protection measures, such as personal protective equipment

The necessity to use and selection of appropriate personal protective equipment should take into account the type of risk posed by the product, working conditions and the way of handling the product. The personal protective equipment used must meet the requirements of Regulation (EU) 2016/425 and the relevant standards. The employer is obliged to provide protection measures appropriate to the activities performed and meeting all quality requirements, including their maintenance and cleaning. Any contaminated or damaged PPE must be replaced immediately.

Hand and body protection

Normally not required.

Eye/face protection

Normally not required.

Respiratory protection

Normally not required.

The information relating to personal protective equipment for the case of contact with zinc metallic, in the form of ingots, wafers, jumbo block, which does not pose a direct threat to their health. The use of plant protection (gloves, protective clothing or masks) is necessary in the case of contact with emerging opportunities in industrial processes zinc compounds, the product being processed or during processing.

You should also take into account the possibility of mechanical or thermal hazards during the processing of zinc metal. Selection of PPE should be based on the use of substances.

The material that the gloves are made of must be impenetrable and resistant to the product's effects. The selection of material must be performed with consideration of breakthrough time, penetration speed and degradation. Moreover, the selection of proper gloves depends not only on the material, but also on other quality features and changes depending on the manufacturer. The producer should provide detailed information regarding the exact breakthrough time. This information should be followed.

Thermal hazards

Do not occur.

Environmental exposure controls

Do not allow the substance to contaminate surface water/ground water. Any emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Section 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	solid/ slabs, ingots, jumbo blocks
Colour:	grey-silver (may be matt)
Odour:	odourless
Melting point/freezing point:	ca. 419.5°C
Boiling point or initial boiling point and boiling range:	ca. 907 °C
Flammability:	the substance is not classified in terms of flammability
Lower and upper explosion limit:	not determined
Flash point:	not determined
Auto-ignition temperature:	not determined
Decomposition temperature:	not determined
pH:	not determined
Kinematic viscosity:	not determined
Solubility:	not soluble in water soluble in inorganic acids, bases
Partition coefficient n-octanol/water (log value):	not determined
Vapour pressure:	not determined
Density and/or relative density:	7.14 g/cm ³ (20°C)
Relative vapour density:	not determined
Particle characteristics:	not applicable

9.2. Other information

No additional data.

Section 10: Stability and reactivity

10.1. Reactivity

Substance is reactive. Does not undergo polymerization. See also subsections 10.3-10.5.

10.2. Chemical stability

The product is stable under normal conditions.

10.3. Possibility of hazardous reactions

Not known.

10.4. Conditions to avoid

Zinc exposed to prolonged exposure to air can undergo passivation.

10.5. Incompatible materials

Acids, bases.

10.6. Hazardous decomposition products

Not known.

Section 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

As a result of direct contact with metallic zinc (supplied in the form of slabs, ingots, jumbo blocks) adverse health effects were not observed. Possible adverse reactions in contact with skin, eyes or inhalation of zinc compounds, or the processed product in the course of processing.

Acute toxicity

LD₅₀ (rat, oral) > 2000 mg/kg

LC₅₀ (rat, inhalation) > 5,41 mg/m³

Based on available data, the classification criteria are not met.

Skin corrosion/irritation

Based on available data, the classification criteria are not met.

Serious eye damage/irritation

Based on available data, the classification criteria are not met.

Respiratory or skin sensitisation

Based on available data, the classification criteria are not met.

Germ cell mutagenicity

Based on available data, the classification criteria are not met.

Carcinogenicity

Based on available data, the classification criteria are not met.

Reproductive toxicity

Based on available data, the classification criteria are not met.

STOT-single exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

Information on likely routes of exposure

Routes of exposure: eye contact, skin contact, inhalation, ingestion. For more information on the impact of each possible route of exposure, see subsection 4.2.

Symptoms related to the physical, chemical and toxicological characteristics

See subsection 4.2.

Delayed and immediate effects as well as chronic effects from short and long-term exposure

See subsection 4.2.

11.2. Information on other hazards

Endocrine disrupting properties

The substance has not been included in the list established in accordance with Article 59 (1) for having endocrine disrupting properties, or as substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605.

Other information

Not known.

Section 12: Ecological information

12.1. Toxicity

Substance is not classified as hazardous for the environment. As the mineral is widespread in the earth's crust. The permissible concentration of zinc in waste water is 2 mg Zn/l. The limit value for zinc in ambient air is 50 µg/m³ averaged over a calendar year and 3.8 µg/m³/1 h.

12.2. Persistence and degradability

Not determined for inorganic substances.

12.3. Bioaccumulative potential

It shows no potential for bioaccumulation.

12.4. Mobility in soil

This product is not mobile in soil and does not dissolve and does not spread in the aquatic environment.

12.5. Results of PBT and vPvB assessment

Substance does not meet the PBT or vPvB criteria.

12.6. Endocrine disrupting properties

The substance has not been included in the list established in accordance with Article 59 (1) for having endocrine disrupting properties, or as substance identified as having endocrine disrupting properties in accordance with the criteria set out in Commission Delegated Regulation (EU) 2017/2100 (3) or Commission Regulation (EU) 2018/605.

12.7. Other adverse effects

The mixture is not classified as hazardous to the ozone layer. The possibility of other harmful effects of individual components of the mixture on the environment should be considered (e.g. global warming potential).

Section 13: Disposal considerations

13.1. Waste treatment methods

Disposal methods for the product: disposed of in accordance with applicable regulations. Do not remove with household waste. Residues stored in their original containers. Recycle or re-processed.

Disposal methods for used packing: metallic zinc does not have individual packages.

Legal basis: Directive 2008/98/EC as amended, 94/62/EC as amended.

Section 14: Transport information

14.1. UN number or ID number

Not applicable, product is not classified as hazardous for transport.

14.2. UN proper shipping name

Not applicable.

14.3. Transport hazard class(es)

Not applicable.

14.4. Packing group

Not applicable.

14.5. Environmental hazards

Not applicable.

14.6. Special precautions for user

They are not required but is recommended for the transport of zinc using roofed vehicles.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable.

Section 15: Regulatory information

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

ADR Agreement Concerning the International Carriage of Dangerous Goods by Road.

IMDG Code International Maritime Dangerous Goods Code.

IATA The International Air Transport Association regulations.

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC as amended.

Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006 as amended.

Commission Regulation (EU) No 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH).

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives as amended.

European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste as amended.

Regulation (EU) 2016/425 of the European Parliament and of the Council of 9 March 2016 on personal protective equipment and repealing Council Directive 89/686/EEC.

Commission Directive 2000/39/EC of 8 June 2000 establishing a first list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

Commission Directive 2006/15/EC of 7 February 2006 establishing a second list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Directives 91/322/EEC and 2000/39/EC.

Commission Directive 2009/161/EU of 17 December 2009 establishing a third list of indicative occupational exposure limit values in implementation of Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

Commission Directive 2017/164/EU of 31 January 2017 establishing a fourth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC, and amending Commission Directives 91/322/EEC, 2000/39/EC and 2009/161/EU.

Commission Directive 2019/1831/EU of 24 October 2019 establishing a fifth list of indicative occupational exposure limit values pursuant to Council Directive 98/24/EC and amending Commission Directive 2000/39/EC.

15.2. Chemical safety assessment

Chemical Safety Report has been prepared for identified use of substance.

Section 16: Other information

Clarification of aberrations and acronyms

PBT	Persistent, Bioaccumulative and Toxic substance
vPvB	very Persistent, very Bioaccumulative substance
PNEC	Predicted no effect concentration
DNEL	Derived no-effect level

Trainings

Before commencing working with the product, the user should learn the Health & Safety regulations, regarding handling chemicals, and in particular, undergo a proper workplace training.

Key literature references and sources of data

This sheet was prepared on the basis of on manufacturer's data, literature data, online databases, our knowledge and experience, taking into account the current legislation.

Additional information

Date of update:	22.07.2022
Version:	6.0/EN
Safety Data Sheet made by:	THETA Consulting Sp. z o.o.

The information above is based on a current available data concerning the product, but also on the experience and knowledge in this field of the producer. They are neither a quality description of the product nor a guarantee of particular features. They are to be treated as aid to safety in transport, storage and usage of the product. That does not free the user from the responsibility of improper usage of the information above and also of improper compliance with the law norms in the field.