MATERIAL SAFETY DATA SHEET

[Made in accordance with EC Regulation 1907/2006 (REACH) and 453/2010]

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

1.1 Product identifier

Trade name:	ZINC
Chemical name:	zinc
CAS Number:	7440-66-6
Registration number:	05-2114555308-45-0000

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

Identified uses:
Zinc production by electrolytic leaching RLE. Zinc production by ISF method.
Storage of bars / plates in warehouses.
Production of chemicals (pyro).
Production of chemicals (hydro).
Additive for production of inorganic catalysts.
Melting, fusion, die-casting.
Cathode protection – protector anodes.
Further uses of zinc-based protector anodes. Extraction of noble metals in Parkes process.
Zinc foundry / grains, granules.
Cast and rolled zinc sheets.
Production of rods and wire.
Further uses of zinc wires for metal splashing.
Component of products for soldering, hard soldering and welding.
Further use of products for soldering, hard soldering and welding. Production of magnetic stripes and coins.
Production of packages for batteries and cans.
Production of zinc powder (pure or recasted).
Production of passivated zinc powder (pure or recasted).
Use of active powder for batteries.
Use of powdered, pure or slightly molten zinc for paint, coating and ink formulation.
Use of zinc powder-based paints, coatings and inks.
Use of zinc powder for mechanical plating.
Use of zinc powder as a reducing agent.
Use of (molten) zinc powder as a corrosion inhibitor in lubricants.
Use of zinc powder (pure or molten) for production of diamond tools.
Use of zinc powder (pure or molten) for production of frictional linings.
Use of zinc powder (pure or molten) for production of carbon brushes.
Production of brass.
Use of brass casts to be transformed into intermediates. Use of brass-containing products.
Use of pressure-cast alloys.
Use of pressure-cast ingots.
Production of zinc-containing aluminium alloys.
Use of zinc containing aluminium alloys.
General hot-dip plating.
Continuous hot-dip plating.
Electroplating 10
Galvanic coating.
Production of disks by (EB) PVD method or other splattering methods. Use of galvanised products.

Uses advised against: not defined.

1.3 Details of the supplier of the safety data sheet

Supplier:	BOLMET S.A.
Address:	ul. Wyzwolenia 1D, 32-329 Bolesław, Poland
Telephone/Fax:	+48 32 642 13 61 / +48 32 646 11 86

E-mail of the person responsible for the safety data sheet: biuro@theta-doradztwo.pl

1.4 Emergency telephone number

112 (general emergency number), 998 (fire brigade), 999 (ambulance service)

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Section 2: Hazards identification

2.1 Classification of the substance or mixture

Classification in accordance with 67/548/EEC Directive

The substance has not been classified as hazardous to humans. The substance has not been classified as hazardous to the environment.

Classification in accordance with Regulation 1272/2008/EC

The substance has not been classified as hazardous to humans. The substance has not been classified as hazardous to the environment.

2.2 Label elements

Hazard pictograms and signal word

None

Hazard statements

None

Precautionary statements

None

2.3 Other hazards

The substance does not meet PBT or vPvB criteria according to Annex XIII to REACH regulation.

Section 3: Composition/information on ingredients

3.1 Substance

Chemical name: **zinc**

Synonyms: electrolytic zinc, SHG zinc, metallic zinc, zinc, high purity zinc
SHG electrolytic zinc, zinc special high grade, technically pure zinc. The substance contains impurities that do not affect classification thereof.

Range of concentrations: approx. 100 %

CAS Number: 7440-66-6

EC Number: 231-175-3

Registration number: the substance is subject to the transient period regulations.

Section 4: First aid measures

4.1 Description of first aid measures

Skin contact: Wash the exposed skin areas with soapy water. Consult a doctor if irritation occurs.

Eye contact: Wash contaminated eyes thoroughly with running water for 10-15 minutes. Protect non-contaminated eye, remove contact lenses. Consult an ophthalmologist if necessary.

Ingestion: Exposure by this route usually does not occur.

Inhalation: Exposure by this route usually does not occur.

4.2 Most important symptoms and effects, both acute and delayed

No negative health effects are observed at direct contact with metallic zinc. Adverse reactions are possible in the case of contact with skin, eyes or following inhalation of zinc compounds, processed product or the product being processed.

4.3 Indication of any immediate medical attention and special treatment needed

Decision on the rescue procedure is taken by a doctor following thorough examination of victim's condition.

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Section 5: Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media: Metallic zinc is not a flammable substance. Adjust fire extinguishing agents to the surrounding materials.

Unsuitable extinguishing media: water jet – the risk of fire spreading.

5.2 Special hazards arising from the substance or mixture

Hazardous smokes containing carbon oxides and zinc oxides may be released at combustion. Avoid breathing combustion products, since they can pose health risk.

5.3 Advice for fire-fighters

General protection measures typical in the case of fire. Do not stay in the area endangered with fire without proper chemical-resistant clothing and self-contained breathing apparatus.

Section 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For the persons not taking part in the elimination of breakdown effects: limit the access of bystanders to the endangered area until proper cleaning operations are finished. In the case of great leakage isolate the endangered area.

6.2 Environmental precautions

In the case when larger amounts of the substance have been released avoid spreading in the natural environment. Do not allow the product to penetrate surface waters, ground waters, soil, drains, wells, cellars, etc.

6.3 Methods and material for containment and cleaning up

Collect mechanically. Transfer the collected material to reuse or treat it as waste.

6.4 Reference to other sections

Waste product handling – section 13 of the Safety Data Sheet. Individual protection measures – see section 8 of the Safety Data Sheet.

Section 7: Handling and storage

7.1 Precautions for safe handling

Work in accordance with safety and hygiene rules. Ensure proper ventilation. Wash hands before break and after work is finished.

7.2 Conditions for safe storage, including any incompatibilities

Store only in cool, dry and well ventilated room. Protect against heat sources and contact with water and moisture. Keep away from inorganic acids and bases.

7.3 Specific end use(s)

Production of pig sows, plates, blocks, alloys, casts, ball-bearing electrodes, zinc dust; in metal industry zinc is used as anti-corrosion and decorative coatings; in chemical industry it is used as Chinese white, in rubber production; in pharmaceutical and cosmetic industry in a form of ZnO as a filler.

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Section 8: Exposure controls/personal protection

8.1 Control parameters*

Specification	TLV-TWA	TLV-STEL	TLV-C	DSB
Zinc oxide – calculated as Zn - smokes [CAS 131 4-1 3-2]	**5 mg/m^3**	**10 mg/m^3**	**—**	**—**

* values for a similar substance

Legal basis: Dz. U. 2002, No. 217, item 1833, with amendments)., Dz. U. 1996, No.69, item 332, with amendments).

8.2. Exposure control

Observe general safety and hygiene rules. Do not eat, drink or smoke at work.
Wash hands before break and after work is finished. Ensure general and/or local ventilation in the workplace.

Hand and body protection

Not required under normal working conditions.

Eye protection

Not required under normal working conditions.

Respiratory protection

Not required under normal working conditions.

The above mentioned information concerning personal protection measures refer to the case of the contact with metallic zinc that does not pose direct hazard to workers' health. Use of protective measures (protective gloves, clothes or mask) is necessary when contact with zinc compounds formed in technological processes, processed product or product being processed is possible. Possibility of mechanical or thermal hazards at processing of metallic zinc should also be taken into consideration. The choice of individual protection measures should depend on the use of the substance.

The material, of which gloves are made has to be impermeable and resistant to the product. Glove material should be selected with consideration to breakthrough time, permeability rate and degradation Moreover, the choice of proper material depends not only on material, but also on other quality features, and it varies depending on manufacturer. One should obtain the information on the accurate breakthrough time from a manufacturer and observe it. The applied personal protection measures have to meet the requirements included in the Regulation of the Minister of Economy of 21 December 2005 (Dz. U. No.259, item 2173) and Directive 89/686/EC (with amendments). The employer is obliged to ensure protection measures suitable for the operations being performed and meeting all the quality requirements, including maintenance and cleaning.

Environmental exposure controls

Prevent uncontrolled release of the substance to surface waters, sewage and soil.

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Section 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

physical state:	solid/pig sows, plates, jumbo blocks
colour:	silver-grey (may be dull)
odour:	odourless
odour threshold:	not determined
pH value:	not applicable
melting/solidification point:	approx. 419.5°C
initial boiling temperature:	approx. 907°C
flash point:	not applicable
evaporation rate:	not determined
flammability (solid, gas):	non-flammable
upper/lower explosion limit:	not applicable
vapour pressure (20°C):	not applicable
vapour density	not determined
density (20°C):	7.14 g/cm^3
solubility (20°C):	insoluble in water; soluble in inorganic acids and bases
partition coefficient: n-octanol/water:	not applicable
self-ignition point:	no self-ignition occurs
temperature of decomposition:	not determined
explosive properties:	none observed
oxidising properties:	none observed
viscosity (20°C):	not applicable

9.2 Other information

No additional test results.

Section 10: Stability and reactivity

10.1 Reactivity

The substance is reactive in contact with acids and bases.

10.2 Chemical stability

The product is stable at correct use and storage.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

Water, moisture, excessive heating.

10.5 Incompatible materials

Acids and bases

10.6 Hazardous decomposition products

None known.

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Section 11: Toxicological information

11.1 Information on toxicological effects

No negative health effects are observed at direct contact with metallic zinc. Adverse reactions are possible in the case of contact with skin, eyes or following inhalation of zinc compounds, processed product or the product being processed.

Section 12: Ecological information

12.1 Toxicity

The substance has not been classified as hazardous to the environment. It occurs commonly as a mineral in the crust of the Earth.

12.2 Persistence and degradability

Not determined for inorganic substances.

12.3 Bioaccumulation potential

No bioaccumulation potential is demonstrated.

12.4 Mobility in soil.

The product does not demonstrate mobility in soil; it is insoluble and it does not spread in the aquatic environment.

12.5 Results of PBT and vPvB assessment

It does not meet classification criteria as PBT substance.

12.6 Other adverse effects

The product does not affect global warming and ozone layer damage.

Section 13: Disposal considerations

13.1 Waste treatment methods

Advice on the substance: dispose of according to the applicable regulations. Do not dispose with municipal wastes. Store residue in original containers. Recover or reprocess.

Advice on used packages: metallic zinc does not have unit packages.

Community legal acts: European Parliament and Council Directives: 2006/12/EC AND 94/62/EC, directive of the Council 91/689/EEC.
Country-specific legal acts: Dz. U. 2001, No. 62, item 628, with amendments)., Dz. U. 2001, No. 63, item 638, with amendments)

Section 14: Transport information

14.1 UN number

Not applicable, the product has not been classified as hazardous in transport.

14.2 Proper transport name

Not applicable.

14.3 Transport hazard class(es)

Not applicable.

14.4 Packing group

Not applicable.

14.5 Environmental hazards

The substance has not been classified as hazardous to health.

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14.6 Special precautions for user

Not required, but transport in covered vehicles is recommended.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

Section 15: Regulatory information

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

The Act of 11 January 2001 on chemical substances and preparations (Dz. U. No.11, item 84 with amendments). Consolidated text (Dz. U. of 2009 No.152, item 1222).
Regulation of the Minister of Health of 8 February 2010 on the list of hazardous substances, including classification and labelling thereof (Dz. U. No.27, item 140).
Regulation of the Minister of Health of 2 September 2003, on the criteria and classification of chemical substances and preparations (Dz. U. No.171, item 1666 with amendments).
Regulation of the Minister of Health of 5 March 2009 on labelling hazardous substances and preparations (Dz. U. No. 53, item 439).
Regulation of the Minister of Labour and Social Policy of 29 November 2002 on the maximum acceptable concentrations and intensities of the factors hazardous for health at the workplace (Dz. U. No.217, item 1833 with amendments).
Government Statement of 16 January 2009 on taking effect of Annex A and B to the European Contract on International road transport of hazardous goods (ADR), made up in Geneva on 30 September 1957 (Dz.U. No.27, item 162).
The Act of 27 April 2001 on wastes (Dz. U. No.62, item 628 with amendments).
Regulation of the Minister of Environment of 27 September 2001, on the catalogue of wastes (Dz. U. No.112, item 1206).
Regulation of the Minister of Economy of 21 December 2005, on the basic requirements for personal protection measures (Dz. U. No.259, item 2173 of 2005).
Regulation of the Minister of Work and Social Policy of 20 April 2005 on testing and measurements of factors hazardous to health at the workplace (Dz. U. No.73, item 645 of 2005 with amendments).
The Act of 22 January 2010 on the amendment to the act on wastes and some other acts (Dz. U. No.28, item 145.).
Act of 11 January 2001, on packages and packaging wastes (Dz. U. No.63, item 638 with amendments).
1907/2006/EC Regulation of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency and 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
1272/2008/EC Regulation of the European Parliament and 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 the Regulation (EC) No. 1907/2006
999/45/EC Directive of the European Parliament and of the Council of 31 May 1999 concerning the approximation of the laws, regulations and administrative provisions of the member States relating to the classification, packaging and labelling of dangerous preparations.
790/2009/WE Regulation of the Commission of 10 August 2009 amending, for the purposes of its adaptation to technical and scientific progress, 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.
453/2010/EC Commission Regulation (EU) No 453/2010 of 20 May 2010 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
2006/12/EC Directive of the European Parliament and of the Council of 5 April 2006 on waste.
91/689/EEC Council Directive 91/689/EEC of 12 December 1991 on hazardous waste.
94/62/EC European Parliament and Council Directive 94/62/EC of 20 December 1994 on packaging and packaging waste.

15.2 Chemical safety assessment

Preparation of the Chemical Safety Report for the substance and its specified identified uses is not required.

Section 16: Other information

Training

Before working with the product a user should get acquainted with occupational safety regulations related to chemicals handling, and especially have special proper workplace training.

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Abbreviations and acronyms

TLV-TWA	Threshold Limit Value, Time-Weighted Average
TLV-STEL	Threshold Limit Value, Short Term Exposure Limit
TLV-C	Ceiling Exposure Limit
DSB	Acceptable Biological concentration

Additional information

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Amendments:	
Made by:	Marta Kuberska-Maciejewska, MSc. (based on manufacturer's information).

The Safety Data Sheet was issued by: **„THETA"** Doradztwo Techniczne

The above mentioned information has been developed based on the currently available data that characterise the product, as well as manufacturer's experience and knowledge within this scope. They do not constitute quality description of the product or a guarantee of specific properties. The data shall be used only as an aid in safe proceeding during the product transport, handling, and storage. It does not release the user from the responsibility for improper use of the information above and observing all legal standards applicable in this field.