



SAFETY DATA SHEET

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

PRIMARY ZINC GRADE Z1

Date: 12.12.2011

Revision: 09.06.2015

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

1.1. Product identifier

Primary Zinc Grade Z1

Chemical name: Zinc [CAS: 7440-66-6; EC: 231-175-3]

Registration number: 01-2119467174-37-0023.

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

Relevant identified uses: Production of zinc article and zinc alloys.

Uses advised against: All other uses than above mentioned.

1.3. Details of the supplier of the safety data sheet

Producer/Distributor: HUTA CYNKU „Miasteczko Śląskie” S.A.

Address: Poland; PL 42-610 Miasteczko Śląskie; Hutnicza 17 street

Telephone/Fax: +48 32 2888 444 (dir.) / +48 32 2888 687/885

E-mail address of the person responsible for the SDS: hcm@hcm.com.pl

1.4. Emergency telephone number

112 (emergency call), 998 (fire brigade), 999 (ambulance)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to 1272/2008/EC:

Hazards to man: Not classified.

Hazards to environment: Is not classified as hazardous for environment.

Hazard from physical and chemical properties: Not classified.

2.2. Label elements

Hazard pictograms, signal words: None.

Hazard statements: None.

Precautionary statements: None.

The names of hazardous ingredients on the label: None.

2.3. Other hazards

No information on meeting the criteria for PBT or vPvB in accordance with Annex XIII of Regulation 1907/2006 (REACH). Tests have not been carried out.

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance name:	Metallic zinc*
Concentration [%]:	<99.995
CAS Number:	7440-66-6
EC Number:	231-175-3
Index Number:	-
Classification 1272/2008/EC:	-

*Substance is not classified in Annex VI, Table 3.1 of Regulation 1272/2008 due to the form in which it appears.



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3.2. Mixtures

Not applicable.

SECTION 4: First aid measures

4.1. Description of first aid measures

Information given below concerns work in conditions of exposure to vapours, fumes and dusts generating during mechanical or thermal treatment of metallic zinc.

Inhalation: If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention if necessary.

Skin contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention if irritation occurs.

Eye contact: If wearing contact lenses, remove them. Immediately flush eyes with gentle but large stream of water or other sterile liquid for at least 10-15 minutes, lifting lower and upper eyelids occasionally. Call a physician if irritation persists.

Ingestion: Rinse mouth with water. If conscious, give plenty of water to drink. If unconscious do not give any of mouth. Do not induce vomiting unless directed to do so by medical personnel. If potentially dangerous quantities of this material have been swallowed. Ingestion zinc may be the consequence of not following basic hygiene, for example not washing hands after handling the product, exposure to high concentrations of zinc dust and fumes.

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

Inhalation: Exposure to dust or fumes of zinc compounds may cause respiratory irritation. Following inhalation exposure to zinc fumes may cause fever-founders of the sweet taste in the mouth, fever, chills, headache, weakness, excessive sweating, strong thirst, pain in legs and chest, breathing problems, vomiting.

Eye contact: Exposure to dust or fumes of zinc compounds may cause irritation of the eyes.

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

If omit mechanical hazards due to mass of zinc alloys, zinc metal does not create any hazards at room temperature. Remove affected person from the contaminated product of the environment. In the event of health problems, consult your doctor or the center of toxicological concern. Provide the information contained in the SDS. If unconscious do not give anything by mouth.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media: Adapt to the environment.

Unsuitable extinguishing media: Adapt to the environment.

5.2. Special hazards arising from the substance or mixture

Product is not combustible. During fire in temperature above 420°C the dangerous fumes containing toxic and irritant fumes and vapours of zinc and others metals, zinc oxide, may be formed. Avoid inhalation of combustion products, because they may pose a health risk.

5.3. Advice for firefighters

Wear full protective equipment and self-contained breathing apparatus with independent air circulation. Keep out of drains, surface waters and soil against pollution. Water from fire treated as hazardous pollution and accumulate in separate containers.



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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

For non-emergency personnel: Should restrict access to non-emergency personnel to the area of failure until the completion of the disposal of the product. Wear appropriate personal protective equipment.

For emergency responders: Wear appropriate personal protective equipment.

6.2. Environmental precautions

Secure the gullies. Prevent contamination of surface water and ground. In the event of any serious pollution of the environment, notify the appropriate administrative authority, control and rescue services. Dispose of used packaging to deliver to eligible organizations.

6.3. Methods and material for containment and cleaning up

Take up mechanically. Re-use the collected product.

6.4. Reference to other sections

Disposal - see Section 13. Personal protective equipment - see Section 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

When you have all the activities carried out with the product: do not eat, drink, smoke or take drugs. No special measures required in the case of work with product in the form of blocks. Avoid dusts and fumes formation during mechanical or thermal treatment of zinc blocks. Wear appropriate personal protective equipment. Wash your hands before break and after working with the product.

7.2. Conditions for safe storage, including any incompatibilities

Keep in properly labeled, factory sealed containers, with a label which complies with current regulations. Do not exceed the allowable unit load warehouse. Do not store with foods, drinks and feeds. Avoid contact with strong acids, strong bases, chlorinated hydrocarbons, oxidants.

7.3. Specific end use(s)

Production of zinc article and zinc alloys.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Substance name	TWA	STEL	BLV
Zinc - converted to Zn - inhalable fraction [CAS: 1314-13-2]	5 mg/m ³ (in Poland)	10 mg/m ³ (in Poland)	-

Legal basis: Ordinance on maximum permissible concentration and intensity of harmful factors in the work environment in accordance with national limit values.

EH40/2005 Workplace exposure limits, second edition, published 2011, ISBN 978 0 7176 6446 7.

Monitoring procedures: Use methods described in European Standards.



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DNEL substances – components of the product under conditions of acute and chronic exposure.

Zinc

DNELs for workers and consumers

Route of entry	Soluble Zn compounds	Insoluble Zn compounds
Oral	50 mg Zn/day (i.e., 0.83 mg Zn/kg b.w./day)	50 mg Zn/day (i.e., 0.83 mg Zn/kg b.w./day)
Dermal	500 mg Zn/day (i.e., 8.3 mg Zn/kg b.w./day)	5000 mg Zn/day (i.e., 83 mg Zn/kg b.w./day)
Inhalation	2.5 mg/m ³ (worker) 1.3 mg/m ³ (consumer)	5 mg/m ³ (worker) 2.5 mg/m ³ (consumer)

8.2. Exposure controls

Mandatory general regulations on occupational health. Do not allow the crossing of the environment, the workplace concentration limits for hazardous constituents. After work, wash and clean the surface of the body and clothing. Do not eat, drink, smoke or take drugs at work. Avoid skin and eyes contamination. Do not inhale dusts and fumes. Wash your hands before break and after working with the product. Keep away from food.

Eye/face protection: When dusts, fumes and vapours are generated wear suitable protective glasses (in accordance with EN 166).

Skin Protection: Appropriate protective gloves (in accordance with EN 374) and protective clothing.

Respiratory protection: Usually is not required. In terms of exposure to concentrations exceeding the limit values of TWA, in terms of exposure to dust, fumes and vapours of the product wear appropriate respiratory protection, for example in terms of short-term exposure - a mask filter or a canister with a suitable breathing apparatus with independent air supply in the exposure to high concentration.

Thermal Hazards: Usually is not required. During work with hot (molten) product wear long-sleeved clothing, aprons, heat-resistant gloves (in accordance with EN 407).

Used personal protective equipment should meet the requirements of local/ regional/ national laws. The employer must provide personal protective equipment appropriate to the type of work and meeting all requirements, including maintenance and cleaning.

Concentrations should be monitored hazardous substances in the workplace in accordance with recognized test methods. Mode, method, type and frequency of testing and measurement of harmful factors in the working environment should meet the requirements of local/regional/national laws.

Environmental exposure controls: Shouldn't be allowed to reach large quantities of ground water, sewage, waste water or soil.

PNEC substances – components of the product to the aquatic environment and biological sewage treatment plants:

PNEC aquatic

	Value
PNEC aqua - freshwater (µg/L)	20.6
PNEC aqua - marine water (µg/L)	6.1

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PNEC sediment

	Value
PNEC aqua - freshwater	117.8 mg/kg sediment d.w.
PNEC aqua - marine water	56.5 mg/kg sediment d.w.

PNEC soil

	Value
PNEC soil	35.6 mg/kg soil d.w.

PNEC for sewage treatment plant (STP)

	Value
PNEC stp	52 µg/L

PNEC oral (secondary poisoning): Not applicable. Zinc is not bioaccumulative.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance:	Massive metal, shiny silver (solid)
Odour:	Odourless
Odour threshold:	Not applicable
pH:	Not applicable
Melting point/freezing point:	409°C at 1013 hPa
Initial boiling point and boiling range:	If it does not mean the melting point is above 300°C
Flash point:	Not applicable
Evaporation rate:	Not applicable
Flammability (solid, gas):	Not applicable
Upper/lower flammability or explosive limits:	Not applicable
Vapour pressure:	If it does not mean the melting point is above 300°C
Vapour density:	Not applicable
Relative density:	6.9 g/cm ³ at 20°C
Solubility:	Not soluble in water
Partition coefficient: n-octanol/water:	Not applicable
Auto-ignition temperature:	Not applicable
Decomposition temperature:	Not specified
Viscosity:	Not applicable
Explosive properties:	None. Extremely flammable hydrogen is released in reaction with acids or bases
Oxidising properties:	Not applicable

9.2. Other information

No data.

SECTION 10: Stability and reactivity

10.1. Reactivity

Not reactive under normal conditions of use.

10.2. Chemical stability

Stable under normal conditions.

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10.3. Possibility of hazardous reactions

Extremely flammable hydrogen (H₂) is released in reaction with acids or bases.

10.4. Conditions to avoid

Avoid excessive heat, moisture.

10.5. Incompatible materials

Avoid contact with strong acids, strong bases, chlorinated hydrocarbons, oxidants.

10.6. Hazardous decomposition products

None under normal conditions of use and storage.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity:

Inhalation: Of significance for humans from an acute toxicity standpoint is the occurrence of metal fume fever following exposure to ultrafine particles of special grades of zinc oxide in context of very specific operations. According to the response from 11 zinc companies to a questionnaire, there have been no observations of zinc metal fume fever over the last decade and in recent occupational practice. However in light of responsible care and since no studies are available that allow the establishment of a NOAEL for metal fume fever with a reasonable degree of certainty, a LOAEL (5 mg ZnO/m³) for 2 hours (showed the typical metal fume fever symptoms beginning 4 to 8 hours after exposure and disappearing within 24 hours) can be used for metal fume fever based on the study by Gordon *et. al* (1992).

Ingestion: The acute toxicity of zinc and its compounds depends on the type of zinc compound as well as on the route of application. While the slightly soluble and insoluble zinc compounds (i.e., zinc oxide, zinc hydroxide, zinc phosphate, zinc carbonate, zinc metal and zinc sulphide) are of low acute, dermal and inhalation toxicity not requiring a classification for acute toxicity according to the EC criteria, the soluble forms of zinc displayed a higher level of acute toxicity requiring classification for oral and possibly inhalation exposure. With LD₅₀ values consistently exceeding 2,000 mg/kg b.w., slightly soluble or insoluble zinc compounds such as, zinc oxide (LD₅₀ ranges between 5000 and 15000 mg/kg b.w.), zinc phosphate (LD₅₀ is >5000 mg/kg b.w.), zinc metal (LD₅₀ >2000 mg/kg b.w.) or zinc sulphide (LD₅₀ is >15000 mg/kg b.w.) show low level of acute oral toxicity. Moreover, zinc oxide and zinc metal were further shown to be of low acute inhalation toxicity (i.e., LC₅₀ values of >5.41 and 5.7 mg/l/4h). Given the common characteristics shared via their solubility characteristics, the remaining slightly soluble zinc compounds are also considered to be of low acute inhalation toxicity.

Skin corrosion/irritation: Not classified.

Serious eye damage/irritation: Not classified.

Respiratory or skin sensitization: Not classified.

Germ cell mutagenicity: Not classified.

Carcinogenicity: Not classified.

Reproductive toxicity: Not classified.

STOT - single exposure: Not classified.

STOT - repeated exposure: Not classified.

Aspiration hazard: Not classified

Inhalation: Exposure to dust or fumes of zinc compounds may cause respiratory irritation. Following inhalation exposure to zinc fumes may cause fever-founders of the sweet taste in the mouth, fever, chills, headache, weakness, excessive sweating, strong thirst, pain in legs and chest, breathing problems, vomiting.



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Eye contact: Exposure to dust or fumes of zinc compounds may cause irritation of the eyes.

Skin contact: Usually does not cause any health problems.

Ingestion: Unlikely route of exposure.

SECTION 12: Ecological information

12.1. Toxicity

Product is not classified as hazardous for environment.

Acute toxicity to aquatic environment (freshwater organisms)

Low pH water: 0.413 mg Zn/L (the lowest value to *Ceriodaphnia dubia*)

For the waters of a neutral / high pH: 0.136 mg Zn/L (the lowest value to *Seleneastrum capricornutum*)

Chronic toxicity to aquatic environment (freshwater organisms)

For waters with pH 8.0: 19 µg Zn/L (*Pseudokirchneriella subcapitata*)

For waters with pH 6.0: 82 µg Zn/L (*Daphnia magna*)

12.2. Persistence and degradability

Not applicable for inorganic mixtures.

12.3. Bioaccumulative potential

Zinc is an essential element which is actively regulated throughout the food chain and does not bioaccumulate or biomagnify. Due to homeostatic control mechanisms, bioaccumulation is not relevant to essential elements in general and to zinc in particular.

12.4. Mobility in soil

Insoluble in water, not mobile in soil.

12.5. Results of PBT and vPvB assessment

Not applicable for inorganic mixtures.

12.6. Other adverse effects

It does not affect global warming and ozone depletion.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

During removal of waste comply with the regional / national laws.

Community legislation:

- 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.

Disposal methods for the product: Don't introduce into the environment. Disposal in accordance with the local/national legislation.

Disposal methods for used packing: Empty containers give for appropriate rubbish dump or for disposal in accordance with the local/national legislation.

Waste codes:

11 05 - Wastes from hot galvanising processes.

11 05 01 - Hard zinc.

11 05 02 - Zinc ash.

17 04 - Metals (including their alloys).

17 04 04 - Zinc.



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SECTION 14: Transport information

14.1. UN number

Not applicable.

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 specified.

14.6. Special precautions for user

During cargo handling should be used with personal protective equipment - see Section 8.

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

Not specified.

SECTION 15: Regulatory information

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

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation 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 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).

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.

15.2. Chemical safety assessment

Safety assessment of substances - components. There is a chemical safety report for zinc.

SECTION 16: Other information

The full text of statements H under Sections 2 and 3:

None.

Key to abbreviations and acronyms:

BLV - Biological limit values.

DNEL - Derived no-effect level.

PNEC - Predicted no-effect concentration.

STEL - Short-term exposure limit.

TWA - 8 hours time-weighted average.



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Training advice: Before use read the SDS.

Sources of key data:

Manufacturer's SDS from 12th January 2011.

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 also treated as aid to safety in transport, storage and usage of the product. This does not free the user from the responsibility of improper usage of the information above also of improper compliance with the law norms in the field.

Prepared by ISOTOP s.c. Consulting Company; www.isotop.pl; e-mail: reach@isotop.pl

SDS from 12.12.2011 (Version 1) has been revised in sections 1.1, 1.3, 1.2, 3.1, 7.3, 8.1, 8.2, 9.1, 9.2, 10.1, 10.6, 11.1, 12.1, 12.4, 13.1, 15.1 and 16. Changes have been underlined.