

Material Safety Data Sheet

ZINC OXIDE

Section 1 - Product Identification

Synonyms : Zinc Oxide
Molecular Weight : 81.38 g/mol
Chemical Formula : ZnO
Company Identification : Tradeasia International Pte. Limited
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Recommended use of the chemical and restrictions on use

The product is used in industrial manufacturing, in particular in :

Chemical reagent or raw material for production of: rubber compounding (activator) and tires, vulcanization or polymerization processes, ceramics, paints (pigment, anti-corrosive and anti-fouling paints), glass, zinc chemicals production (basic chemical for production of organic and inorganic compounds), basic compound for production of additives in lubricants and fuel and fuels, plastics, animal feed (trace element compound), component of fertilizers, plating agents and metal surface treatment, polymers, electronics (basic component for varistors and ferrites), component in batteries, catalysts, pharmaceuticals (API) and cosmetics (UV-absorber) substances, semiconductors, photosensitive agents and photo-chemicals substances, corrosion inhibitors and anti-scaling agents.

Section 2 – Composition/Information on Ingredients

Chemical Name	EC No/CAS No	Purity, %
Zinc Oxide	1314-13-2.	max. 99.9

Section 3 – Hazards Identification

3.1 Classification

Classification according to Regulation (EC) N° 1272/2008 (CLP/GHS) Hazard pictogram



GHS09: environment

WARNING

Aquatic Acute 1 H400 - Very toxic to aquatic life

Aquatic Chronic 1 H410 - Very toxic to aquatic life with long lasting effects

3.2 Label elements

Signal Word Warning

Hazard Statements Aquatic Chronic 1 H410 - Very toxic to aquatic life with long lasting effects

Precautionary Statements

Prevention Keep away from heat/sparks/open flames/hot surfaces.
No smoking Keep container tightly closed Ground/bond container and receiving equipment
Use explosion-proof electrical/ventilating/lighting/equipment
Use only non-sparking tools
Take precautionary measures against static discharge
Wear protective gloves/protective clothing/eye protection/face protection

Section 4 – Composition/ information on ingredients

4.1 Composition comments

Component Zinc Oxide

CAS No. 1314-13-2

Weight >95

Section 5 – First-Aid Measures

5.1. Description of first aid measures

Skin contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention if symptoms occur.

Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.

Inhalation

If symptoms such as nose or throat irritation are observed, remove to fresh air.

Ingestion

Do NOT induce vomiting. Get medical attention.

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

N.A.

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

N.A.

Section 6 – Fire Fighting Measures

6.1. Suitable Extinguishing media

Not combustible substance. Apply an extinguishing substance suitable for delimited fires.

6.2. Specific hazards arising from the chemical

No risk because the substance is not classified as flammable.

6.3. Special protective actions for fire-fighters

Dike water used to extinguish the fire because contaminated with this substance and prevent access to waterway, sewer or drain.

Section 7 – Accidental Release Measures

7.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Remove all sources of ignition. Take precautionary measures against static discharges. Avoid contact with skin, eyes or clothing

7.2. Environmental precautions

Avoid release to environment.

7.3. Methods and material for containment and cleaning up Remove all sources of ignition. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Use spark-proof tools and explosion-proof equipment. Take precautionary measures against static discharges.

Section 8 – Handling and Storage

8.1. Precautions for safe Handling

Wear personal protective equipment/face protection. Keep away from open flames, hot surfaces and sources of ignition. Use spark-proof tools and explosion-proof equipment. T Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation.

8.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat, sparks and flame. Protect from direct sunlight.

Section 9 – Exposure Controls/Personal Protection

9.1. Appropriate engineering controls

Ensure adequate ventilation, especially in confined areas. Use explosion-proof electrical/ventilating/lighting/equipment. Ensure that eyewash stations and safety showers are close to the workstation location.

9.2. Individual protection measures, such as personal protective equipment (PPE)

Respiratory protection

In case of prolonged exposure to dust wear a personal respirator in compliance with national legislation (make reference to the appropriate CEN standard)

Eyes and hands protection

Goggles and gloves are not required for normal industrial exposures, but may be warranted if environment is excessively dusty.

Section 10 – Physical and Chemical Properties

10.1. Information on basic physical and chemical properties

Appearance : Solid (powder or granules)

Odour : Odourless

Odour threshold : N.A.

pH ; 7 ÷ 8 (suspended in water) ISO 787/9

point : -96 °C

Boiling point : 120 °C

Flash point : 30 °C

Evaporation rate : N.A.

Flammability : All grades of zinc oxide powder were not be considered as flammable

Upper/lower flammability or explosive limits : Non explosive

Vapour pressure : Negligible @ 20°C

Vapour density : Not applicable if the melting point is above 300°C (Column 2 of Annex VII REACH regulation (EC) n. 1907/2006).

Relative density : 5.689 CM^3

Solubility in water : 2.9mg/l

Partition coefficient: n-octanol/water : N.A

Auto-ignition temperature : N.A.

Decomposition temperature : N.A.

Viscosity : N.A.

10.2. Other information

Molecular weight : 81.38 g/mol

Specific gravity : 5.6 @20 °C

Section 11 – Stability and Reactivity

11.1. Reactivity

The product is stable and non-reactive under normal conditions of use, storage and transport.

11.2. Chemical stability

Stable under normal conditions of use, storage, and transportation.

11.3. Possibility of hazardous reactions

Hazardous polymerization does not occur.

11.4. Conditions to avoid: Avoid contact with acids and bases

11.5. Incompatible materials

Acids and bases

11.6. Hazardous decomposition products

N.A.

Section 12 – Toxicological Information

12.1 Health effects associated with ingredients

LD50 (rat) > 15000 mgZnO/kg - Löser 1972; LD50 (ratto) > 5000 mgZnO/kg - Löser (1977)

12.2 Health effects associated with compounds formed during processing

No new/additional compounds are expected to be formed during processing.

12.3 Information on likely routes of exposure

Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting

Section 13 – Ecological Information

13.1. Toxicity

Freshwater sediment PNEC_{bioav}: 235.6 mg/kg sediment dry weight,

Saltwater sediment PNEC_{bioav}: 113 mg/kg sediment dry weight.

13.2.3. Bioaccumulative potential

Zinc is a natural, essential element, which is needed for the optimal growth and development of all living organisms, including man. All living organisms have homeostasis mechanisms that actively regulate zinc uptake and absorption/excretion from the body; due to this regulation, zinc and zinc compounds do not bioaccumulate or biomagnify

13.4. Mobility in soil

Solids-water partitioning coefficient: 158.5 l/kg. (Chemical Safety report (CSR) zinc oxide. 2010).

13.5. Other adverse effects

No Data Available

Section 14 – Disposal Considerations

14.1. Disposal methods

Reuse or recycle material whenever possible. If reuse or recycling is not possible, disposal must be made according to local or governmental regulations. Dispose in accordance with all applicable regulations.

Section 15 – Transport Information

15.1. UN number : UN3077

15.2. UN proper shipping name : Flammable liquid. n.o.s

15.3. Transport of hazard classes : 9

15.4. Packing group : III

15.5. Environmental hazards : N.A.

15.6. Special precautions for user : N.A

Section 16 – Regulatory Information

15.1. Safety, health and environmental regulations

National regulations: in Italy the zinc oxide is not subject to specific regulations (Italy - D.lgs. 81/08 and subsequent amendments).

According to the quantity stored the substance is subject to the “Seveso” regulation, (Italy - D.lgs. 334/99 and subsequent amendments; Directive 96/82/EC, Directive 2003/105/EC and Directive 2012/18/EU).

Section 16 : Additional Information

16.1. Mainly changes made to the previous version of this Material Safety Data Sheet (MSDS):

- Within REACH Cosortium Zinc (IZA-Europe), according to the requirements of the REACH Regulation (EC) No 1907/2006 for the registration of the product, was developed the Chemical Safety Report (CSR) from which have been drawn from the information contained in this safety data sheet.

Revision No	Revision content
05	<ul style="list-style-type: none"> • This SDS is updated in accordance with the GHS (Rev.6) (2015)-Guidance on the Compilation of Safety data Sheets. • This SDS is updated in line with Eti Maden Corporate identity.

16.2. List of abbreviation and acronyms used in this MSDS

SDS : Safety Data Sheets

Index N° : atomic number of the element most characteristic of the properties of the substance

CAS No : Chemical Abstracts Service number

EC No : EINECS Number : European Inventory of Existing Commercial Substances

Repr. Cat. 2 : Substance presumed human reproductive toxicant

Acute Oral Cat. 5 : Substance which is of relatively low acute oral toxicity.

GHS : Globally Harmonised System of Classification and Labelling

LD₅₀ : Median Lethal Dose

LC₅₀ : Lethal Concentration, 50%

N.A. : Not Applicable

OSHA : Occupational Safety & Health Administration

Cal OSHA : The State of California Division of Occupational Safety and Health (DOSH)

PEL : Permissible Exposure Limits

ACGIH : American Conference of Governmental Industrial Hygienists

TLV : Threshold Limit Value

Japanese MITI : Japanese Ministry of International Trade and Industry

EC₅₀ : Half maximal effective concentration

UN : United Nations

U.S. EPA TSCA Inventory: Inventory of the chemical substances manufactured or processed in the United States according to Toxic Substances Control Act compiled and published under the authority of the Environmental Protection Agency

Canadian DSL: Canadian Domestic Substances List

16.3. List of relevant hazard statements and precautionary statements used in this MSDS

Hazard Statement

H361 d: Suspected of damaging the unborn child

H319: Causes serious eye irritation

H303: May be harmful if swallowed

Precautionary Statements

Prevention

P201: Obtain special instructions before use.

P202: Do not handle until all safety precautions have been read and understood.

P281: Use personal protective equipment as required.

P264: Wash eyes thoroughly after handling.

P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P308 + P313: If exposed or concerned: get medical advice/attention.

P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

P337+P313: If eye irritation persists: Get medical advice/attention.

Storage

P405: Store locked up.

Disposal

P501: Dispose of contents/container to in accordance with local regulations.

16.4. References

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2. Denton SM (1996). Acute oral toxicity study in the rat: anhydrous boric acid. Final report. Report no.: 1341/7-1032.
3. National Toxicology Program (NTP) – Technical Report Series No. TR324, NIH Publication No. 88 2580 (1987), PB88 213475/XAB
4. Fail et al., Fund. Appl. Toxicol. (1991) 17, 225-239
5. Heindel et al., Fund. Appl. Toxicol. (1992) 18, 266-277
6. Birge W J, Black J A, EPA-560/-76-008 (April 1977) PB 267 085
7. Scialli AR, Bonde JP, Brüske-Hohlfeld I, Culver D, Li Y, Sullivan FM; ELSEVIER 2009
8. Robbins WA, Xun L, Jia J, Kennedy N, Elashoff DA, Ping L. ;ELSEVIER 2009;(Reproductive Toxicology)
9. Hansveit and Oldersma, 2000; TNO Nutrition and Food Research Institute. Report No. V99.157.
10. Gersich, FM (1984a). Environ.Toxicol.Chem., 3 #1, 89-94 (1984)
11. Soucek et al., 2010. Illinois Natural History Survey, University of Illinois.

For general information on the toxicology of borates see ECETOC Technical Report No. 63 (1995); Patty's Industrial Hygiene and Toxicology, 4th Edition Vol. II, (1994) Chap. 42, 'Boron'.

16.5. Disclaimer of Liability

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