



SAFETY DATA SHEET

5581

ZINC OXIDE

1. Identification of substance/preparation and of the company undertaking

Trade name:	Zinc Oxide
Chemical Name:	ZnO
Synonyms:	Zinc White, Chinese White

Relevant identified uses:

Paint, rubber, plastics, ink, enamel, glass, astringent topical protectant, antiseptics, electronics, adhesives, chemical products, cosmetics.

Uses advised against:

No information available

2. Composition /information on ingredients

Component	CAS	EC No.	Weight %	Classification (67/548/EEC)	Classification (1272/2008/EC)	REACH Reg. No.
Zinc Oxide	1314-13-2	215-222-5	60-100	N; R50	Aquatic Acute 1 H400 Aquatic Chronic 1 H410	01-2119463881-32-0039

There are no additional ingredients present which, within the current knowledge of the supplier, are classified and contribute to the classification of the substance and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

3. Hazards Identification

Product definition	Substance
Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]	Aquatic Acute 1, H400 Aquatic Chronic 1, H410
Classification according to Directive 67/548/EEC (DSD)	N; R50
Labelling according to Regulation (EC) No. 1272/2008 (CLP)	Hazard pictograms (CLP): GHS-09 Single Word (CLP): Warning
Hazard Statements (CLP)	H400: Very toxic to aquatic life H410: Very toxic to aquatic life with long lasting effects.
Precautionary Statements (CLP)	P273: Avoid release to the environment P391: Collect spillage.

**Other hazards:**

This substance/mixture does not meet the PBT criteria of REACH, annex XIII.
This substance/mixture does not meet the vPvB criteria of REACH, annex XIII.

4. First Aid Measures

Inhalation	Remove patient to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or is respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Ingestion	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
Eyes	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Get medical attention if irritation occurs.
Skin	Flush contamination skin with plenty of water. Remove contaminates clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Protection of first aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Most important symptoms and effects, both acute and delayed:

Eye contact:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.
Inhalation:	Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the nose, throat and lungs.
Skin contact:	No known significant effects or critical hazards.
Ingestion:	No known significant effects or critical hazards.

Indication of any immediate medical attention and special treatment needed:

Notes to physician:	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
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5. Fire Fighting Hazards

Extinguishing media	Use extinguishing media suitable for surrounding fire. High volume water jet not suitable.
Fire Hazard	Not flammable
Explosion Hazard	No data available
Reactivity	Stable under normal conditions of handling and storage
Special Hazard	Hazardous decomposition products formed under fire conditions. Carbon oxides, Lithium oxide. Do not allow run-off from fire-fighting to enter drains or water courses.

6. Accidental Release Measure

General measures	Keep public away from danger area. Keep away from heat source.
Environmental precautions	Prevent entry to sewers and soil. Notify authorities if product enters sewers or public waters.
Methods and material for containment and cleaning up	Sweep or shovel spills into appropriate container for disposal. Avoid dust production.

7. Handling & Storage

Handling	Do not breathe dust. Wash hands plentifully and other exposed areas with water after handling. Remove contaminated clothing and shoes. Wash clothing before re-using.
Packaging	Even those that have been emptied, will retain product residue. Always obey safety warnings and handle empty packaging as if they were full. Avoid contact with this substance.
Hygiene measures	When using do not eat, drink or smoke. Wash hands and other exposed areas with mild soap and water before eat, drink or smoke and when leaving work. Remove contaminated clothing and shoes.
Storage conditions	Store in a dry, cool, well-ventilated area. Keep away from food, drink and animal feeding stuffs.

8. Exposure Control/Personal Protection

Occupational exposure limits	Chemical Name: Zinc oxide Exposure limit vales (EH40-OES): STEL: 10mg/m ³ 15 minutes. Form: Fume TWA: 5mg/m ³ 8 hours. Form: Fume
Recommended monitoring practice	If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to European Standard EN



	689 for methods of the assessment of exposure by inhalation to chemical agents and national guidance documents for methods for the determination of hazardous substances.
Derived effect levels	No DELs available
Predicted effect concentrations	No PECs available
Exposure controls	Local vacuuming is recommended to maintain the emissions of dust or fumes at the lowest admissible level for exposure. Periodical controls should be done to working environment.
Appropriate engineering controls	If handling conditions produce dust, it should be necessary to use personal protective equipment. Do not eat, drink or smoke while handling this product. At the end of work, wash or shower. Before breaks, wash hands. After work shower or wash. Change work clothes after handling the product. Remove soiled or splashed clothing and wash it before re-using it. Shower and washroom facilities should be separate from changing rooms. The substance must be kept away from food, drink and condiments.

Individual protection measures, such as personal protective equipment:

Eye/face protection:	Wet-fitted chemical protective goggles with plastic lenses (e.g. Clear PVC). Or facial safety screen. It is generally known that contact lenses must not be worn when working with chemicals because they may contribute to the severity of possible damage to the eyes.
Hand protection:	Protective gloves: Nitrile rubber (EN374). Glove thickness: 0.11mm.
Skin and body protection:	Long sleeved clothing.
Respiratory protection:	In the case of dust or dust or aerosol formation use respirator with an approved filter (EN143).
Recommended filter type:	P2
Hygiene measures:	Handle in accordance with good industrial hygiene and safety practice. Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product. Provide regular cleaning of equipment, work area and clothing.
Environmental Exposure Controls:	Do not allow material to contaminate ground water system.

9. Physical & Chemical Properties

Physical state	Solid
Colour	White
Odour	Odourless
Odour threshold	Not applicable
pH	Neutral
Relative evaporation rate	No data available
Melting point (°C)	Sublimation temperature 1975°C
Freezing point	No data available
Boiling point	No data available
Flash point	Not explosive



Self-ignition temperature	No data available
Decomposition temperature	No data available
Flammability (solid, gas)	Not flammable
Vapour pressure	Not applicable
Relative vapour density at 20°C	No data available
Relative density	5.61
Density	No data available
Solubility	Very slightly soluble in the following materials: cold and hot water
Partition coefficient (n-octanol/water)	No data available
Viscosity, kinematic	No data available
Viscosity, dynamic	No data available
Explosive properties	Not explosive
Oxidising properties	No data available
Exposure limits	Not applicable

10. Stability & Reactivity

Chemical stability	Stable under normal conditions of handling and storage
Possibility of hazardous reactions	Under normal conditions of storage and use, hazardous reaction will not occur.
Conditions to avoid	No specific data available.
Incompatible materials	Chlorinated rubber: Violent reaction or possible explosion with zinc oxide at 215°C. Flax Oil: Exothermic reaction with possibility of ignition. Magnesium: If heated, explosive reaction. Strong bases and acids: Possibility of violent reaction.
Hazardous decomposition products	Under normal conditions of storage and use, hazardous decomposition products should not be produced.

11. Toxicological Information

Acute toxicology	No data available
Irritation corrosion	Zinc oxide: Eyes – Mild irritant (Rabbit 24 hours exposure 500mg). Skin – Mild irritant (Rabbit 24 hours exposure 500mg).
Sensitisation:	No data available
Mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive toxicity:	No data available
STOT-single exposure:	No data available
STOT-repeated exposure	No data available
Aspiration hazard:	There is no data available

12. Ecological Information



Chemical name	Result	Species	Exposure
Zinc oxide	Acute EC50: 0.042 mg/L Fresh Water	Algae – Pseudokirchneriella subcapitata Exponential growth phase	72 hours
	Acute LC50: 98 ug/L Fresh Water	Daphnia – Daphnia magna – Neonate <24 hours	48 hours
	Acute LC50: 1.1 to 2.5 ppm Fresh water	Fish – Oncorhynchus mykiss <24 hours	96 hours

Persistence and degradability	No data available
Bioaccumulative potential	No data available
Mobility in soil	No data available
Results of PBT and vPvB assessment	This substance/mixture does not meet the PBT or vPvB criteria of REACH, annex XIII.
Other adverse effects	No known significant effects or critical hazards.

13. Disposal Considerations

Product:	
Methods of disposal	The generation of waste should be avoided or minimised wherever possible. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.
Hazardous waste	The classification of the product may meet the criteria for a hazardous waste.
Packaging:	
Methods of disposal	The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
Special precautions	This material and its container must be disposed of in a safe way. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.

14. Transport Information

UN/SI No	UN3077
UN proper shipping name	Environmentally hazardous substance, Solid N.O.S (Zinc Oxide). Marine Pollutant (Zinc oxide).



Transport hazard classes	9
Packing group	III
Environmental hazards	Yes
Special precautions for user	Not available. Additional information: Tunnel Code (E).
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not available

15. Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture	EU regulation (EC) No. 1907/2006 (REACH) Annex XIV – List of substances subject to authorisation. Substances of very high concern. None of the components are listed.
Chemical safety assessment	Not available

16. Other Information

Abbreviations/acronyms	
ATE	Acute Toxicity Estimate
CLP	Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DNEL	Derived No effect level
EUH Statement	CLP – specific hazard statement
PNEC	Predicted no effect concentration
RRN	REACH Registration Number

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 (CLP/GHS)

Classification	Justification
Aquatic Acute 1, H400	Expert judgement
Aquatic Chronic, H410	Expert judgement

Full text of H-Statements

H400 – Very toxic to aquatic life

H410 – Very toxic to aquatic life with long lasting effects.

Full text of classifications (CLP/GHS)

Aquatic Acute 1, H400 – Aquatic Toxicity (Acute) – Category 1

Aquatic Chronic 1, H410 – Aquatic Toxicity (Chronic) – Category 1

Full text of R Phrases

R50 – Very toxic to aquatic organisms

Full text of classifications (DSD/DPD)

N – Dangerous for the environment

Training advice:

Workers must be trained in the proper use and handling of this product as required under applicable regulations.



This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 (REACH).
Label element according to Regulation (EC) No. 1272/2008 (CLP), 453/2010.

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product. Any chemical product may be handled in safe conditions if its physiochemical and toxicological properties are known, and technical methods and appropriate organising measure are used, as well as adequate personal protective equipment.