

**SAFETY DATA SHEET (ZINC OXIDE)****SECTION 1: PRODUCT AND COMPANY IDENTIFICATION****Product Details**

Product name	: Zinc Oxide
Trade name	: Red Seal/White Seal/Pharma
Chemical name	: Zinc Oxide
Synonyms	: Zinc White, Flowers of Zinc, Philosopher's Wool, Chinese White
Chemical formula	: ZnO
Molecular weight	: 81.39
CAS number	: 1314-13-2
EC number	: 215-222-5
Chemical family	: Metallic Oxide
Manufacturer's name	: Approfit Zinc Oxide Mfg Sdn. Bhd.
Manufacturer's code	: 223363-P
Uses	: Accelerator, activator, pigment and reinforcing agent in rubber, ointment, pigment and mold growth inhibitor in paints, ceramics, floor tile, glass, Zinc salts (Zinc Stearate etc) feed additive, semi-conductor in electronic devices, electronic ceramics, raw material to produce Zinc Phosphate as steel coating.

Company Identification

Manufacturer's name & address	: Approfit Zinc Oxide Mfg Sdn. Bhd. Lot 102, Lorong Senawang 4/2, Senawang Industrial Estate, 70450 Senawang Negeri Sembilan Darul Khusus
Emergency Tel. No.	: 03-8068 2288 / 06-677 5239 (office hours) : 012-2971783 (after office hours)

SECTION 2: HAZARD IDENTIFICATION**Label Elements**

Hazard pictograms	
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Hazard Statements

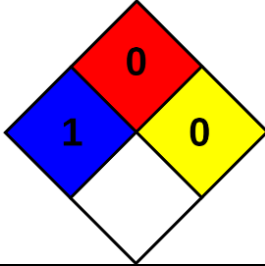
H400	Very toxic to aquatic life
H410	Very toxic to aquatic life with long lasting effects

Precautionary Statements

P262	Do not get in eyes, on skin or on clothing. If in eyes, rinse cautiously with water for several minutes. Remove contact lenses, if present and continue rinsing
P403, P233	Store in a well-ventilated place. Keep container tightly closed
P273	Avoid release to the environment
P501	Disposal of contents/containers as hazardous or special waste in accordance with applicable law.



Classification System

NFPA & HMIS		<table border="1"> <tr> <td style="background-color: #0000ff; color: white;">HEALTH</td> <td style="text-align: center;">1</td> </tr> <tr> <td style="background-color: #ff0000; color: white;">FLAMMABILITY</td> <td style="text-align: center;">0</td> </tr> <tr> <td style="background-color: #ffff00; color: black;">REACTIVITY</td> <td style="text-align: center;">0</td> </tr> </table>	HEALTH	1	FLAMMABILITY	0	REACTIVITY	0
HEALTH	1							
FLAMMABILITY	0							
REACTIVITY	0							

SECTION 3: COMPOSITION OF / INFORMATION ON INGREDIENTS

Product/Ingredient	: Zinc Oxide
CAS No.	: 1314-13-2
EINECS	: 215-222-5
RTECS No.	: ZH4810000
Proportion	: Essentially 100%

SECTION 4: FIRST AID MEASURES

Ingestion	: Provide rest, warmth and fresh air. Rinse mouth and drink plenty of water. Seek medical attention if vomiting or person is unconscious.
Eye contact	: Immediately flush eyes with plenty of running water for at least 15 minutes. Seek medical attention if irritation occurs.
Skin contact	: Wash skin with soap and water. Wash clothing before re-use. Call a physician if irritation occurs.
Inhalation	: Move to fresh air and keep at rest. If breathing is difficult get immediate medical attention.

SECTION 5: FIRE FIGHTING MEASURES

Fire & explosion hazards	: Not flammable
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Extinguishing media	: Non combustible
Firefighting instruction	: Use extinguishing media appropriate to surrounding fire conditions. Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Special hazards arising from the substance or mixture	: This material is very toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Special hazards	: May emit toxic fumes under fire conditions.



SECTION 6: ACCIDENTAL RELEASE MEASURE

Leak/Spill	: Utilize recommended protective clothing and equipment. Clean spills in a manner that does not disperse dust into the air. Recover the product and place in appropriate containers. The containers should be labelled, clean, dry and fitted with a cover. Dispose per published norms and/or contact the manufacturer for assistance and recommendation on disposal of the product. Collect wash water for approved disposal. Observe any Federal, State or local rules relative to disposal of the material.
Environmental	: Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

SECTION 7: HANDLING AND STORAGE

Storage temp. (min/max)	: Ambient/Ambient
Shelf life	: 3 years, if tightly closed and properly stored, in dry cool place.
Special sensitivity	: None
Handling	: Avoid release to environment. Avoid breathing dust. Avoid getting in eyes or skin. Wash thoroughly after handling
Storage	: Store in a dry place away from direct sunlight, heat and incompatible materials. Store away from food and beverages. Containers of this material may be hazardous when empty since they retain product residues (dust/ solids); observe all warnings and precautions listed for the product

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limit

OSHA PEL	5mg/m ³ TWA (fume) 5mg/m ³ TWA (respirable fraction) 15mg/m ³ TWA (total dust)
Cal/OSHA PEL	5mg/m ³ STEL 8-hour TWA (fume) 10mg/m ³ Ceiling 8-hour TWA (fume) 10mg/m ³ (total dust) 5mg/m ³ (respirable fraction)
NIOSH REL	5mg/m ³ STEL 10-hour TWA (fume) 10mg/m ³ Ceiling 10-hour TWA (fume) 5mg/m ³ STEL (total dust) 15mg/m ³ Ceiling (total dust)
ACGIH TLV	2mg/m ³ STEL 8-hour TWA (respirable) 10mg/m ³ Ceiling 8-hour TWA (respirable) 2mg/m ³ STEL (respirable fraction) 10mg/m ³ Ceiling (respirable fraction)



Personal protection

Eye protection	: Safety glasses or chemical safety goggles are recommended.
Skin protection	: Rubber gloves with impervious boots, apron or coveralls is recommended. Employees should wash their hands and face before eating, drinking or using tobacco products.
Respiratory protection	: Work ambient concentrations should be monitored and if the recommended exposure limit is exceeded, a DOSH approved dust respirator must be worn.
If the concentration is over 250mg/m ³	: Requires an air purifier respirator with full facial unit complete with high efficiency particle filter, positive pressure or standard respirator complete with full facial unit.
If the concentration is over 2500mg/m ³	: Self-contained half mask apparatus. GLOVES: Protective gloves CLOTHES: Appropriate working clothes. EYE PROTECTION: Anti-splash or anti-dust safety goggles. Do not use contact lenses as safety equipment.
Ventilation requirement	: Use local ventilation if dusting is a problem, to maintain air levels below the recommended exposure limit.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical form	: Fine powder
Colour	: White to Yellowish – White
Odour	: Odourless
Solubility	: Insoluble in water/alcohol, soluble in dilute acids
Solubility in water	: 0.16mg/100ml (30°C)
Boiling point	: 2360°C
Melting point	: 1975°C
Vapour pressure (mm of Hg at 25°C)	: Not applicable
Percent volatiles	: Not applicable
Evaporation rate	: Not applicable
Density	: 5.606g/cm ³
Specific gravity	: 5.47

SECTION 10: STABILITY AND REACTIVITY

Condition to avoid	: Excessive temperature. (Zinc oxide sublimes to produce toxic fumes)
Stability	: Stable under ordinary conditions of use and storage
Hazardous polymerization	: Will not occur
Incompatibilities	: Strong oxidizing agents
Chlorinated rubber	: Violent reaction or 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



SECTION 11: TOXICOLOGICAL INFORMATION

<p>Toxicity data</p>	<p>ORL-HMN LDLO: 500mg/kg YAKUD5 22, 291, 1980 IPR-RAT LD50 : 240mg/kg ZDKAA8 38(9), 18, 1978 ORL-MUS LD50 : 7950mg/kg GISAAA 51(4), 89, 1986 IHL-MUS LC50 : 2500mg/m³ IPSTB3 3, 93, 1976</p>
<p>Irritation data</p>	<p>SKN-RBT 500mg / 24h MLD 28 ZPAK -, 10,1972 EYE-RBT 500mg / 24h MLD 28 ZPAK -, 10,1972</p>
<p>Carcinogenicity</p>	<p>This product is not listed by NTP, IARC or regulated as carcinogen by OSHA.</p>
<p>Reproductive toxicity</p>	<p>Not available</p>

Effects of overexposure

<p>Inhalation</p>	<p>: May irritate the respiratory tract. Symptoms may include coughing, shortness of breath, sore throat and runny nose. If sufficient amounts are inhaled and absorbed, symptoms may resemble those in acute ingestion.</p>
<p>Skin</p>	<p>: Irritation with symptoms of redness, swelling, itching and pain.</p>
<p>Eye</p>	<p>: Irritation with symptoms of redness, swelling, itching, tearing and pain.</p>
<p>Ingestion</p>	<p>: May cause gastroenteritis with abdominal pain, nausea, vomiting and diarrhoea. Systemic effects may follow and may include ringing of the ears, dizziness, elevated blood pressure, blurred vision and tremors.</p>
<p>Chronic effects</p>	<p>: Prolonged skin contact can produce a severe dermatitis called oxide pox. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin. Repetitive of prolonged exposure to zinc oxide fumes may cause conjunctivitis.</p>
<p>Medical Conditions Generally Aggravated by exposure</p>	<p>: Persons with pre-existing eye or skin conditions or impaired pulmonary function may be more susceptible to the effects of this product.</p>

SECTION 12: ECOLOGICAL INFORMATION

Toxicity

Product name	Result	Species	Exposure
Zinc Oxide	Acute EC50 0.042mg/L fresh water	Algae-Pseudokirchneriella subcapitata- Exponential growth phase.	72 hours
	Acute LC50 98ug/L Fresh water	Daphnia-Daphnia magna- Neonate	48 hours
	Acute LC50 320ppm Fresh water	Fish-lepomis macrochirus	96 hours
	Chronic NOEC 0.017mg/L Fresh water	Algae- Pseudokirchneriella subcapitata- Exponential growth phase.	72 hours



Bio-accumulative potential



Product name	LogP _{ow}	BCF	Potential
Zinc Oxide	-	60960	High

Persistence and degradability	: No data available
Mobility	: No data available
Other adverse effects	: No known significant effects or critical hazards

SECTION 13: DISPOSAL INFORMATION

Disposal info	: Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.
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SECTION 14: TRANSPORT INFORMATION

UN No. or ID No.	ADR/RID: 3077 IMDG-Code: 3077 IATA: 3077
UN proper shipping name	ADR/RID: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide) IMDG: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide) IATA: Environmentally Hazardous Substance, Solid, N.O.S. (Zinc Oxide)
Transport hazard class(es)	ADR/RID: 9 IMDG: 9 IATA: 9
Packaging group	ADR/RID: III IMDG: III IATA: III
Environmental hazards	ADR/RID: Yes IMDG Marine pollutant: Yes IATA: Yes
Danger label	 

**SECTION 15: REGULATORY INFORMATION**

OSHA	: This product is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200
TSCA	: On TSCA Inventory
SARA Title III	: This product is subject to Sara section 313 reporting requirements
RCRA	: If discarded in its purchased form, this product would not be hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine the time of disposal, whether a material containing the product or derived from the product should be classified as a hazardous waste (40 CFR 261.20-24).
California Proposition 65	: To the best of our knowledge, this product contains no levels of listed substances, which the state of California has found to cause cancer, birth defects or other reproductive effects.
European	: EC NO: 215-222-5 Zinc Oxide is not considered environmentally hazardous outside of EU. ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide) UN 3077, Class 9, PG111. Ingredients listed on the European inventory of existing commercial Chemical substances (EINECS)

**SECTION 16: OTHER INFORMATION**

	Rev No.	Rev Date	History records
Revision history	Rev J	13/05/22	- Update new format - Update Section 2, Classification System - Update Section 8 according to OSHA - Update Section 14
	Rev H	13/03/23	- Update Section 2, Add Hazard Statement H400 - Update Section 11, Add Reproductive toxicity data
Reviewed by	: Tan Weng Kiat (Manufacturing Executive)		
Approved by	: John Chong (Managing Director)		

NOTIFICATION

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