


# Material Safety Data Sheets

## 1. IDENTIFICATION

<b>Product Name</b>	<b>Zinc Oxide</b>
<b>Other Names</b>	C.I. 77947; C.I. Pigment White 4; Chinese white; Zinc monoxide; Zinc Oxide AKTIV; Zinc white
<b>Uses</b>	Additive.
<b>Chemical Family</b>	No Data Available
<b>Chemical Formula</b>	ZnO
<b>Chemical Name</b>	Zinc oxide
<b>Product Description</b>	No Data Available
<b>Company</b>	<b>Arman sina.co</b>
<b>Contact Information</b>	<a href="mailto:info@armansina.com">info@armansina.com</a> <a href="http://www.armansina.com">www.armansina.com</a>

## 2. HAZARD IDENTIFICATION

### Globally Harmonised System

<b>Hazard Classification</b>	Hazardous according to the criteria of the Globally Harmonised System of Classification and Labelling of Chemicals (GHS)	
<b>Hazard Categories</b>	Acute Hazard To The Aquatic Environment - Category 1 Long-term Hazard To The Aquatic Environment - Category 1	
<b>Pictograms</b>		
<b>Signal Word</b>	Warning	
<b>Hazard Statements</b>	<b>H410</b>	Very toxic to aquatic life with long lasting effects.
<b>Precautionary Statements</b>	Prevention	<b>P273</b> Avoid release to the environment.
	Response	<b>P391</b> Collect spillage.
	Disposal	<b>P501</b> Dispose of contents/container in accordance with local / regional / national / international regulations.

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

### Ingredients

Chemical Entity	Formula	CAS Number	Proportion
Zinc oxide	ZnO	1314-13-2	<=100 %
May contain: Magnesium oxide	MgO	1309-48-4	0-4%

## 4. FIRST AID MEASURES

*Description of necessary measures according to routes of exposure*

<b>Swallowed</b>	IF SWALLOWED: Rinse mouth then drink plenty of water. Do not induce vomiting unless directed to do so by medical personnel. Get medical advice/attention if you feel unwell. If vomiting occurs, lean patient forward or place on left side (head-down position if possible) to maintain open airway and prevent aspiration. Never give anything by mouth to an unconscious person.
<b>Eye</b>	IF IN EYES: Immediately flush eyes with running water for several minutes, holding eyelids open and occasionally lifting the upper and lower lids. Remove contact lenses if present and easy to do. Continue rinsing for at least 15 minutes. If eye irritation persists, get medical advice/attention.
<b>Skin</b>	IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs, get medical advice/attention.
<b>Inhaled</b>	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing until recovered. Remove contaminated clothing and loosen remaining clothing. If respiratory symptoms persist, get medical advice/attention.
<b>Advice to Doctor</b>	Treat symptomatically. No action shall be taken involving any personal risk or without suitable training. Ensure that attending medical personnel are aware of the identity and nature of the product(s) involved, and take precautions to protect themselves. *Most important symptoms and effects, both acute and delayed: Chronic exposure to zinc oxide may cause respiratory tract irritation with nasopharyngitis and laryngitis.

**Medical Conditions Aggravated by No information available.**  
Exposure

## 5. FIRE FIGHTING MEASURES

<b>General Measures</b>	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. If safe to do so, move undamaged containers from fire area. Cool containers with water spray until well after fire is out. Dike fire-control water for later disposal.
<b>Flammability Conditions</b>	Non-combustible; Material does not burn.
<b>Extinguishing Media</b>	If material is involved in a fire, use dry chemical, Carbon dioxide (CO <sub>2</sub> ), foam or water spray for extinction. *Use extinguishing agent suitable for type of surrounding fire.
<b>Fire and Explosion Hazard</b>	No information available.
<b>Hazardous Products of Combustion</b>	Fire or heat may produce irritating and/or toxic gases, including Carbon dioxide, Carbon monoxide, metal oxides.
<b>Special Fire Fighting Instructions</b>	Contain runoff from fire control or dilution water - Runoff may cause pollution.
<b>Personal Protective Equipment</b>	Wear positive pressure self-contained breathing apparatus (SCBA). Structural firefighters' protective clothing will only provide limited protection.
<b>Flash Point</b>	No Data Available
<b>Lower Explosion Limit</b>	No Data Available
<b>Upper Explosion Limit</b>	No Data Available
<b>Auto Ignition Temperature</b>	No Data Available
<b>Hazchem Code</b>	No Data Available

## 6. ACCIDENTAL RELEASE MEASURES

<b>General Response Procedure</b>	No action shall be taken involving any personal risk or without suitable training. Ensure adequate ventilation. Do not touch or walk through spilled material. Avoid creating dusty conditions and prevent wind dispersal. Avoid breathing dust and contact with eyes, skin and clothing.
<b>Clean Up Procedures</b>	Carefully shovel or sweep up spilled material and place in suitable container.
<b>Containment</b>	Stop leak if safe to do so – Prevent entry into waterways, drains or confined areas. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
<b>Decontamination</b>	No information available.
<b>Environmental Precautionary Measures</b>	Spillages and decontamination runoff should be prevented from entering drains and watercourses. If environmental contamination has occurred, advise local emergency services.
<b>Evacuation Criteria</b>	Spill or leak area should be isolated immediately. Keep unauthorised personnel away. Keep upwind and to higher ground.

**Personal Precautionary Measures Use personal protective equipment as required (see SECTION 8).**

## 7. HANDLING AND STORAGE

<b>Handling</b>	Safety showers and eyewash facilities should be provided within the immediate work area for emergency use. Ensure adequate ventilation. Handle in accordance with good industrial hygiene and safety practice. Avoid dust formation. Avoid breathing dust and contact with eyes, skin and clothing. Do not ingest. Use personal protective equipment as required (see SECTION 8). Avoid release to the environment - Collect spillage (see SECTION 6).
<b>Storage</b>	Store in a cool, dry and well-ventilated place, out of direct sunlight. Keep containers closed when not in use - check regularly for spills. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Keep away from foodstuffs and incompatible materials (see SECTION 10). Use appropriate containment to avoid environmental contamination.
<b>Container</b>	Keep in the original container or an approved alternative made from a compatible material. Do not store in unlabelled containers. Empty containers retain product residue and can be hazardous.

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<b>General</b>	<p>COMPONENT: Zinc oxide (CAS No. 1314-13-2):</p> <ul style="list-style-type: none"><li>- Safe Work Australia Exposure Standard for Zinc oxide (dust): TWA = 10 mg/m<sup>3</sup>; This value is for inhalable dust containing no asbestos and &lt;1% crystalline silica (a).</li><li>- Safe Work Australia Exposure Standard for Zinc oxide (fume): TWA = 5 mg/m<sup>3</sup>; STEL = 10 mg/m<sup>3</sup>.</li><li>- New Zealand Workplace Exposure Standard for Zinc oxide [Adopted 2020]: TWA = 2 mg/m<sup>3</sup> (0.1 mg/m<sup>3</sup> respirable); STEL = 5 mg/m<sup>3</sup> (0.5 mg/m<sup>3</sup> respirable).</li></ul> <p>COMPONENT: Magnesium oxide (CAS No. 1309-48-4):</p> <ul style="list-style-type: none"><li>- Safe Work Australia Exposure Standard for Magnesium oxide (fume): TWA = 10 mg/m<sup>3</sup>.</li><li>- New Zealand Workplace Exposure Standard for Magnesium oxide, fume [Next review 2023]: TWA = 10 mg/m<sup>3</sup>.</li></ul>
<b>Exposure Limits</b>	No Data Available
<b>Biological Limits</b>	No information available.
<b>Engineering Measures</b>	A system of local and/or general exhaust is recommended to keep employee exposures as low as possible. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area.
<b>Personal Protection Equipment</b>	<ul style="list-style-type: none"><li>- Respiratory protection: Wear respiratory protection in case of inadequate ventilation or if an inhalation risk exists. Recommended: Dust mask/respirator complying with an approved standard (refer to AS/NZS 1715 &amp; 1716).</li><li>- Eye/face protection: Wear appropriate eye protection to avoid eye contact. Recommended: Safety glasses with side-shields; If operating conditions cause high dust concentrations to be produced, use dust goggles.</li><li>- Hand protection: Handle with gloves. Recommended (&lt;1 hr): Chemical-resistant, impervious gloves, e.g. Polyvinyl chloride (PVC), Nitrile rubber (NBR), Polychloroprene (CR).</li><li>- Skin/body protection: Wear appropriate personal protective clothing to avoid skin contact. Recommended: Wear protective clothing, e.g. Overalls, safety shoes.</li></ul>
<b>Special Hazards Precautions</b>	No information available.
<b>Work Hygienic Practices</b>	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

<b>Physical State</b>	Solid
<b>Appearance</b>	Powder
<b>Odour</b>	Odourless
<b>Colour</b>	White to yellowish
<b>pH</b>	No Data Available

<b>Vapour Pressure</b>	No Data Available
<b>Relative Vapour Density</b>	No Data Available
<b>Boiling Point</b>	No Data Available
<b>Melting Point</b>	>800 - 1975 ° C
<b>Freezing Point</b>	No Data Available
<b>Solubility</b>	Insoluble in cold water
<b>Specific Gravity</b>	5.61
<b>Flash Point</b>	No Data Available
<b>Auto Ignition Temp</b>	No Data Available
<b>Evaporation Rate</b>	No Data Available
<b>Bulk Density</b>	No Data Available
<b>Corrosion Rate</b>	No Data Available
<b>Decomposition Temperature</b>	No Data Available
<b>Density</b>	5.6 g/cm <sup>3</sup>
<b>Specific Heat</b>	No Data Available
<b>Molecular Weight</b>	81.4 g/mol
<b>Net Propellant Weight</b>	No Data Available
<b>Octanol Water Coefficient</b>	No Data Available
<b>Particle Size</b>	No Data Available
<b>Partition Coefficient</b>	No Data Available
<b>Saturated Vapour Concentration</b>	No Data Available
<b>Vapour Temperature</b>	No Data Available
<b>Viscosity</b>	No Data Available
<b>Volatile Percent</b>	No Data Available
<b>VOC Volume</b>	No Data Available
<b>Additional Characteristics</b>	No information available.
<b>Potential for Dust Explosion</b>	No information available.
<b>Fast or Intensely Burning Characteristics</b>	No information available.
<b>Flame Propagation or Burning Rate of Solid Materials</b>	No information available.
<b>Non-Flammables That Could Contribute Unusual Hazards to a Fire</b>	No information available.
<b>Properties That May Initiate or Contribute to Fire Intensity</b>	Non-combustible; Material does not burn.
<b>Reactions That Release Gases or Vapours</b>	Fire or heat may produce irritating and/or toxic gases, including Carbon dioxide, Carbon monoxide, metal oxides.
<b>Release of Invisible Flammable Vapours and Gases</b>	No information available.

## 10. STABILITY AND REACTIVITY

<b>General Information</b>	Reacts violently with aluminium powder, magnesium powder and chlorinated rubber (on heating); This generates fire and explosion hazard.
<b>Chemical Stability</b>	Stable under normal storage and handling conditions.
<b>Conditions to Avoid</b>	Avoid dust formation. Avoid exposure to air/moisture.
<b>Materials to Avoid</b>	Incompatible/reactive with acids, alkalis, magnesium, aluminium, chlorinated rubber (on heating).

<b>Hazardous Decomposition Products</b>	Fire or heat may produce irritating and/or toxic gases, including Carbon dioxide, Carbon monoxide, metal oxides.
<b>Hazardous Polymerisation</b>	Will not occur.

## 11. TOXICOLOGICAL INFORMATION

<b>General Information</b>	<p>Information on toxicological effects:</p> <ul style="list-style-type: none"> <li>- Acute toxicity: Not classified.</li> <li>- Skin corrosion/irritation: Not classified.</li> <li>- Serious eye damage/irritation: Not classified.</li> <li>- Respiratory/skin sensitisation: Not a skin sensitizer.</li> <li>- Germ cell mutagenicity: No information available.</li> <li>- Carcinogenicity: Not listed as carcinogenic according to IARC.</li> <li>- Reproductive toxicity: No information available.</li> <li>- STOT (single exposure): No information available.</li> <li>- STOT (repeated exposure): No information available.</li> <li>- Aspiration toxicity: Not classified.</li> </ul> <p>Information on possible routes of exposure:</p> <ul style="list-style-type: none"> <li>- Ingestion: No adverse effects expected; Large amounts may cause abdominal pain, diarrhoea, nausea, vomiting.</li> <li>- Eye contact: Non-irritating; May cause (mechanical) eye irritation, redness.</li> <li>- Skin contact: Non-irritating; No adverse effects expected.</li> <li>- Inhalation: Dust may cause respiratory irritation, coughing, sore throat. Fumes may cause metallic taste, headache, fever, chest tightness, shortness of breath, weakness, muscle pain.</li> </ul> <p>Chronic effects: Repeated or prolonged inhalation of (Zinc oxide) dust may lead to chronic respiratory irritation.</p>
<b>Acute</b>	
<b>Ingestion</b>	<p>Acute toxicity (Oral):</p> <p>COMPONENT: Zinc oxide (CAS No. 1314-13-2):</p> <ul style="list-style-type: none"> <li>- LD50, Rat: &gt;5,000 mg/kg</li> </ul> <p>COMPONENT: Magnesium oxide (CAS No. 1309-48-4):</p> <ul style="list-style-type: none"> <li>- LD50, Rat: &gt;5,000 mg/kg</li> </ul>
<b>Inhalation</b>	<p>Acute toxicity (Inhalation - Dust/mist):</p> <p>COMPONENT: Zinc oxide (CAS No. 1314-13-2):</p> <ul style="list-style-type: none"> <li>- LC50, Rat: &gt;5,700 mg/m<sup>3</sup> (4 h).</li> </ul>
<b>Carcinogen Category</b>	None

## 12. ECOLOGICAL INFORMATION

<b>Ecotoxicity</b>	<p>Aquatic toxicity:</p> <p>COMPONENT: Zinc oxide (CAS No. 1314-13-2):</p> <ul style="list-style-type: none"> <li>- EC50, Daphnia (Ceriodaphnia dubia): 0.413 mg Zn/L (48 h) [US EPA 821-R-02-012; pH: &lt;7].</li> <li>- IC50, Algae (Pseudokirchneriella subcapitata): 0.136 mg Zn/L (72 h) [OECD 201, Growth Inhibition Test; pH: &gt;7 - 8.5].</li> </ul>
<b>Persistence/Degradability</b>	The methods for determining the biological degradability are not applicable to inorganic substances.
<b>Mobility</b>	No information available.
<b>Environmental Fate</b>	Very toxic to aquatic life with long lasting effects - Avoid release to the environment.
<b>Bioaccumulation Potential</b>	No information available.
<b>Environmental Impact</b>	No Data Available

## 13. DISPOSAL CONSIDERATIONS

<b>General Information</b>	The generation of waste should be avoided or minimised wherever possible. Dispose of surplus and non-recyclable product via a licensed waste disposal contractor and in accordance with local/regional/national regulations. This material and its container must be disposed of in a safe way. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.
<b>Special Precautions for Land Fill</b>	Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues.

## 14. TRANSPORT INFORMATION

### Land Transport

<b>Proper Shipping Name</b>	Zinc oxide
<b>Class</b>	No Data Available
<b>Subsidiary Risk(s)</b>	No Data Available
<b>EPG</b>	171 Substances (Low to Moderate Hazard)
<b>UN Number</b>	No Data Available
<b>Hazchem</b>	No Data Available
<b>Pack Group</b>	No Data Available
<b>Special Provision</b>	AU01
<b>Comments</b>	Not regulated as DG when transported by road or rail in packagings that do not incorporate a receptacle exceeding 500 kg(L) or IBCs.

### Sea Transport

<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
<b>Class</b>	9 Miscellaneous Dangerous Goods and Articles
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3077
<b>Hazchem</b>	2Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available
<b>EMS</b>	F-A, S-F
<b>Marine Pollutant</b>	Yes

### Air Transport

<b>Proper Shipping Name</b>	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc oxide)
<b>Class</b>	9 Miscellaneous Dangerous Goods and Articles
<b>Subsidiary Risk(s)</b>	No Data Available
<b>UN Number</b>	3077
<b>Hazchem</b>	2Z
<b>Pack Group</b>	III
<b>Special Provision</b>	No Data Available

## 15. OTHER INFORMATION

Revision	2
Key/Legend	<p>&lt; Less Than &gt; Greater Than AICS Australian Inventory of Chemical Substances atm Atmosphere CAS Chemical Abstracts Service (Registry Number) cm<sup>2</sup> Square Centimetres CO<sub>2</sub> Carbon Dioxide COD Chemical Oxygen Demand deg C (° C) Degrees Celcius EPA (New Zealand) Environmental Protection Authority of New Zealand deg F (° F) Degrees Farenheit g Grams g/cm<sup>3</sup> Grams per Cubic Centimetre g/l Grams per Litre HSNO Hazardous Substance and New Organism IDLH Immediately Dangerous to Life and Health immiscible Liquids are insoluable in each other. inHg Inch of Mercury inH<sub>2</sub>O Inch of Water K Kelvin kg Kilogram kg/m<sup>3</sup> Kilograms per Cubic Metre lb Pound LC50 LC stands for lethal concentration. LC50 is the concentration of a material in air which causes the death of 50% (one half) of a group of test animals. The material is inhaled over a set period of time, usually 1 or 4 hours. LD50 LD stands for Lethal Dose. LD50 is the amount of a material, given all at once, which causes the death of 50% (one half) of a group of test animals. ltr or L Litre m<sup>3</sup> Cubic Metre mbar Millibar mg Milligram mg/24H Milligrams per 24 Hours mg/kg Milligrams per Kilogram mg/m<sup>3</sup> Milligrams per Cubic Metre Misc or Miscible Liquids form one homogeneous liquid phase regardless of the amount of either component present. mm Millimetre mmH<sub>2</sub>O Millimetres of Water mPa.s Millipascals per Second N/A Not Applicable NIOSH National Institute for Occupational Safety and Health NOHSC National Occupational Heath and Safety Commission OECD Organisation for Economic Co-operation and Development Oz Ounce PEL Permissible Exposure Limit Pa Pascal ppb Parts per Billion ppm Parts per Million ppm/2h Parts per Million per 2 Hours ppm/6h Parts per Million per 6 Hours psi Pounds per Square Inch R Rankine RCP Reciprocal Calculation Procedure STEL Short Term Exposure Limit TLV Threshold Limit Value tne Tonne TWA Time Weighted Average ug/24H Micrograms per 24 Hours UN United Nations wt Weight</p>