

Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013

**SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING**
**Product Identifier**

Perihalan Produk: **Zinc oxide substrate**  
 Product Description: **Zinc oxide substrate**  
 Cat No. : 45486  
 Synonyms Chinese white; Zinc white; C.I. Pigment White 4  
 CAS No 1314-13-2  
 Molecular Formula O Zn

**Relevant identified uses of the substance or mixture and uses advised against**

Recommended Use Laboratory chemicals.  
 Uses advised against No Information available

**Company** Thermo Fisher Scientific Fisher Scientific (M) Sdn Bhd  
 Hap Seng Business Park, Lot 01-03, 01-04 Aras 1 Unity Square,  
 No 12, Persiaran Perusahaan, Seksyen 23, 40300 Shah Alam,  
 Selangor Darul Ehsan, Malaysia.  
 Main line: +60 3-5525 7888

**Supplier**

**E-mail address** Enquiry.my@thermofisher.com

**Emergency Telephone Number** Tel: +03-5525 7888  
 CHEMTREC Malaysia **1-800-815-308** (Malay)  
 CHEMTREC Malaysia (Kuala Lumpur) **+(60)-327884561** (Malay)

**SECTION 2: HAZARDS IDENTIFICATION**
**Classification of the substance or mixture**

Acute aquatic toxicity	Category 1 (H400)
Chronic aquatic toxicity	Category 1 (H410)

**Label Elements**

**Signal Word**
**Warning**
**Hazard Statements**

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H410 - Very toxic to aquatic life with long lasting effects

## Precautionary Statements

### Storage

P403 - Store in a well-ventilated place

### Disposal

P501 - Dispose of contents/ container to an approved waste disposal plant

## Other Hazards

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Component	CAS No	Weight %
Zinc oxide	1314-13-2	>95

## SECTION 4: FIRST AID MEASURES

### Description of first aid measures

#### Eye Contact

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

#### Skin Contact

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

#### Ingestion

Do NOT induce vomiting. Get medical attention if symptoms occur.

#### Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Get medical attention if symptoms occur.

#### Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

### Most important symptoms and effects, both acute and delayed

No information available.

### Indication of any immediate medical attention and special treatment needed

#### Notes to Physician

Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

### Extinguishing media

#### Suitable Extinguishing Media

Substance is nonflammable; use agent most appropriate to extinguish surrounding fire.

#### Extinguishing media which must not be used for safety reasons

No information available.

### Special hazards arising from the substance or mixture

ALFAA45486

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Do not allow run-off from fire-fighting to enter drains or water courses.

## Hazardous Combustion Products

None under normal use conditions.

## Advice for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

### Personal Precautions, Protective Equipment and Emergency Procedures

Use personal protective equipment as required. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes or clothing.

### Environmental precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

### Methods and Material for Containment and Cleaning Up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

### Reference to Other Sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### Precautions for Safe Handling

Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.

### Conditions for Safe Storage, Including any Incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place.

### Specific End Uses

Use in laboratories.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control Parameters

Component	Malaysia	ACGIH TLV	OSHA PEL
Zinc oxide		TWA: 2 mg/m <sup>3</sup> STEL: 10 mg/m <sup>3</sup>	(Vacated) TWA: 5 mg/m <sup>3</sup> (Vacated) TWA: 10 mg/m <sup>3</sup> (Vacated) STEL: 10 mg/m <sup>3</sup> TWA: 5 mg/m <sup>3</sup> TWA: 15 mg/m <sup>3</sup>

Component	European Union	The United Kingdom	Germany
Zinc oxide			TWA: 0.1 mg/m <sup>3</sup> (8 Stunden). MAK TWA: 2 mg/m <sup>3</sup> (8 Stunden). MAK

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			Höhepunkt: 0.4 mg/m <sup>3</sup> Höhepunkt: 4 mg/m <sup>3</sup>
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## Exposure Controls

### Engineering Measures

Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

## Personal protective equipment

### Eye Protection

Wear safety glasses with side shields (or goggles)

### Hand Protection

Protective gloves

### Skin and body protection

Long sleeved clothing

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

### Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators

## Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice

## Environmental exposure controls

Prevent product from entering drains Do not allow material to contaminate ground water system Local authorities should be advised if significant spillages cannot be contained

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### Information on basic physical and chemical properties

#### Appearance

Off-white

#### Physical State

Powder Solid

#### Odor

Odorless

#### Odor Threshold

No data available

#### pH

7

50 g/l aq.sol.(susp)

#### Melting Point/Range

1975 °C / 3587 °F

#### Softening Point

No data available

#### Boiling Point/Range

No information available

#### Flash Point

No information available

**Method -** No information available

#### Evaporation Rate

Not applicable

Solid

#### Flammability (solid,gas)

No information available

#### Explosion Limits

No data available

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Vapor Pressure	No information available	
Vapor Density	Not applicable	Solid
Specific Gravity / Density	5.600	
Bulk Density	No data available	
Water Solubility	1.6 mg/L (29°C)	
Solubility in other solvents	No information available	

## Partition Coefficient (n-octanol/water)

Autoignition Temperature	No data available	
Decomposition Temperature	No data available	
Viscosity	Not applicable	Solid
Explosive Properties	No information available	
Oxidizing Properties	No information available	

Molecular Formula	O Zn
Molecular Weight	81.38

## SECTION 10: STABILITY AND REACTIVITY

### Reactivity

None known, based on information available.

### Chemical Stability

Stable under normal conditions.

### Possibility of Hazardous Reactions

Hazardous Polymerization	No information available.
Hazardous Reactions	No information available.

### Conditions to Avoid

Avoid dust formation. Incompatible products.

### Incompatible Materials

Strong acids.

### Hazardous Decomposition Products

None under normal use conditions.

## SECTION 11: TOXICOLOGICAL INFORMATION

### Information on Toxicological Effects

#### Product Information

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**(a) acute toxicity;**

**Oral** Based on available data, the classification criteria are not met  
**Dermal** No data available  
**Inhalation** No data available

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Zinc oxide	LD50 > 5000 mg/kg ( Rat )	LD50 > 2000 mg/kg, 24h (Rat)	LC50 > 5.7 mg/L, 4h (Rat)

**(b) skin corrosion/irritation;**

**Test species** Based on available data, the classification criteria are not met  
**Observational endpoint** rabbit  
No skin irritation

**(c) serious eye damage/irritation;**

**Test method** Based on available data, the classification criteria are not met  
Test method B.5  
OECD 405  
**Test species** rabbit  
**Observation end point** No eye irritation

**(d) respiratory or skin sensitization;**

**Respiratory** Based on available data, the classification criteria are not met  
**Skin** Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Zinc oxide 1314-13-2 ( >95 )	in vivo OECD Test Guideline 406 Test method B.6	guinea pig	non-sensitising

**(e) germ cell mutagenicity;**

Based on available data, the classification criteria are not met

Component	Test method	Test species	Study result
Zinc oxide 1314-13-2 ( >95 )	in vitro OECD Test Guideline 471 Bacterial Reverse Mutation Test	in vitro: Bacteria	negative
	in vivo OECD Test Guideline 474 Mammalian	in vivo Mammalian	negative

Mutagenic effects have occurred in experimental animals

**(f) carcinogenicity;**

No data available  
There are no known carcinogenic chemicals in this product

**(g) reproductive toxicity;**

No data available

**(h) STOT-single exposure;**

No data available

**(i) STOT-repeated exposure;**

**Target Organs** No information available.

**(j) aspiration hazard;**

Not applicable  
Solid

**Other Adverse Effects**

The toxicological properties have not been fully investigated. See actual entry in RTECS for

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complete information

**Symptoms / effects, both acute and delayed** No information available.

**Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

**Ecotoxicity effects** Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae	Microtox
Zinc oxide	LC50: = 1.55 mg/L, 96h static (Danio rerio)			

### Persistence and degradability

**Persistence**

Soluble in water, Persistence is unlikely, based on information available.

**Degradability**

Not relevant for inorganic substances.

**Degradation in sewage treatment plant**

Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.

### Bioaccumulative potential

Bioaccumulation is unlikely

### Mobility in soil

The product is water soluble, and may spread in water systems. Will likely be mobile in the environment due to its water solubility. Highly mobile in soils.

### Endocrine Disruptor Information

This product does not contain any known or suspected endocrine disruptors

### Other adverse effects

No information available

## SECTION 13: DISPOSAL CONSIDERATIONS

### Waste treatment methods

**Waste from Residues/Unused Products**

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

### Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

### Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

## SECTION 14: TRANSPORT INFORMATION

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## IMDG/IMO

UN-No UN3077  
Hazard Class 9  
Packing Group III  
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s. Zinc oxide

## Road and Rail Transport

UN-No UN3077  
Hazard Class 9  
Packing Group III  
Proper Shipping Name Environmentally hazardous substances, solid, n.o.s. Zinc oxide

## IATA

UN-No UN3077  
Hazard Class 9  
Packing Group III  
Proper Shipping Name ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.\* Zinc oxide

Special Precautions for User No special precautions required

## SECTION 15: REGULATORY INFORMATION

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

International Inventories X = listed

Component	EINECS	TSCA	DSL	PICCS	ENCS	ISHL	IECSC	AICS	KECL
Zinc oxide	215-222-5	X	X	X	X	X	X	X	KE-35565

Component	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Zinc oxide				Annex I - Y23

### National Regulations

Persistent Organic Pollutant This product does not contain any known or suspected substance  
Ozone Depletion Potential This product does not contain any known or suspected substance

## SECTION 16: OTHER INFORMATION

### Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals



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**WEL** - Workplace Exposure Limit  
**ACGIH** - American Conference of Governmental Industrial Hygienists  
**RPE** - Respiratory Protective Equipment  
**LC50** - Lethal Concentration 50%  
**POW** - Partition coefficient Octanol:Water

**TWA** - Time Weighted Average  
**IARC** - International Agency for Research on Cancer  
**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road  
**IMO/IMDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**OECD** - Organisation for Economic Co-operation and Development  
**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**ATE** - Acute Toxicity Estimate  
**VOC** - (Volatile Organic Compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

<b>Prepared By</b>	Health, Safety and Environmental Department
<b>Revision Date</b>	24-Mar-2025
<b>Revision Summary</b>	Not applicable.

**In accordance with local and national regulations: Occupational Safety and Health (Classification, Labelling and Safety Data Sheet of Hazardous Chemicals) Regulations 2013**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**