

<u>MATERIAL SAFETY DATA SHEET</u>		
According to regulation (EU) no.1907/2006		
ZINC OXIDE		
Revision : 01	Date : August 19 th , 2022	MSDS Number : 266
Section 1 - Chemical Product and Company Identification		

- 1.1 Product Name** : ZINC OXIDE
Synonyms : Zinc white, calamine, philosopher's wool, Chinese white, flowers of zinc
CAS No. : 1314-13-2
HS Code : 2817 00 10
Molecular Weight : 81.39 g/mol
Chemical Formula : ZnO
Product Code : A-2128
Brand : SMART-LAB
- 1.2 Manufacturer** : PT.Smart-Lab Indonesia
Address : Ruko Boulevard Taman Tekno Blok E No. 9-11, BSD Serpong, Tangerang - Indonesia
Website : www.smartlabid.com
Email : sales@smartlabid.com
For information : Telp: +62 21- 7588 0205(Hunting) , fax:+62-21-7588 0198
- 1.3 Application** : General Chemical reagent
Emergency Telephone: +62-21-7588 0205(Hunting)

Section 2 - Hazards Identification

- 2.1 Classification of the substance or mixture**
Classification according to Regulation (EC) No 1272/2008
Short-term (acute) aquatic hazard (Category 1), H400
Long-term (chronic) aquatic hazard (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16

2.2 Label elements

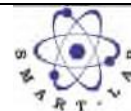
Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal word	warning
Hazard statement(s) H410	Very toxic to aquatic life with long lasting effects.
Precautionary statement(s) P273 P391 P501	Avoid release to the environment. Collect spillage. Dispose of contents/ container to an approved waste disposal plant
Supplemental Hazard Statements	none

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**2.3 Other hazards**

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Section 3 - Composition, Information on Ingredients

3.1 Substances

Synonyms	: ZINC OXIDE
Formula	: ZnO
Molecular weight	: 81.39 g/mol
CAS-No.	: 1314-13-2
EC-No.	: 215-222-5
Index-No.	: 030-013-00-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component	Classification	Concentration
Zinc oxide	Aquatic Acute 1; Aquatic Chronic 1; H400, H410 M-Factor - Aquatic Acute: 1	<=100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

Section 4 – First Aid Measures

4.1 Description of first aid measures**General advice**

Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Remove contact lenses.

If swallowed

After swallowing: make victim drink water (two glasses at most). Consult doctor if feeling unwell.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

Section 5 - Firefighting Measures

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5.1 Extinguishing media**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Zinc/zinc oxides, Not combustible. Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Section 6 - Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

Section 7 - Handling and Storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities**Storage conditions**

Tightly closed. Dry.

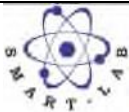
Storage class

Storage class (TRGS 510): 11: Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

Section 8 - Exposure Controls, Personal Protection

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8.1 Control parameters**8.2 Exposure controls****Appropriat engineering controls**

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment**Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact

Material: Nitrile rubber
 Minimum layer thickness: 0.11 mm
 Break through time: 480 min
 Material tested: Dermatril® (KCL 740, Size M)

Splash contact

Material: Nitrile rubber
 Minimum layer thickness: 0.11 mm
 Break through time: 480 min
 Material tested: Dermatril® (KCL 740, Size M)

Body Protection

Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

required when dusts are generated. Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system. Recommended Filter type: Filter type P1

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Control of environmental exposure

Do not let product enter drains.

Section 9 - Physical and Chemical Properties

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9.1 Information on basic physical and chemical properties

Appearance	Form: powder
	Colour: white
Odour	No data available
Odour Threshold	No data available
pH	6,72
Melting point/freezingpoint	Melting point/freezing point: > 1.000 °C at ca.1.013,25 hPa - Regulation (EC) No. 440/2008, Annex, A.1
Initial boiling point and boiling range	No data available
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	No data available
Vapour density	No data available
Relative density	5,68 g/cm ³ at 22 °C
Water solubility	0,0029 g/l at 20 °C – OECD Test Guideline 105- slightly soluble
Partition coefficient: noctanol/water	Not applicable for inorganic substances
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	none

9.2 Other safety information

No data available

Section 10 - Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature)

10.3 Possibility of hazardous reactionsViolent reactions possible with:
hydrogen peroxide, magnesium**10.4 Conditions to avoid**

hygroscopic

10.5 Incompatible materials

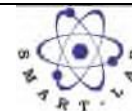
Strong oxidizing agents

10.6 Hazardous decomposition products

In the event of fire: see section 5

Section 11 - Toxicological Information

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11.1 Information on toxicological effects**Acute toxicity**

LD50 Oral - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 423)
 LC50 Inhalation - Rat - male and female - 4 h - > 1,79 mg/l - dust/mist (US-EPA)
 LD50 Dermal - Rat - male and female - > 2.000 mg/kg (OECD Test Guideline 402)

Skin corrosion/irritation

Skin - reconstructed human epidermis (RhE)
 Result: No skin irritation - 1 h (OECD Test Guideline 431)

Serious eye damage/eye irritation

Eyes - Bovine cornea
 Result: No eye irritation - 4 h
 (OECD Test Guideline 437)

Respiratory or skin sensitisation

Maximization Test - Guinea pig
 Result: negative (OECD Test Guideline 406)

Germ cell mutagenicity

Test Type: Ames test
 Test system: Escherichia coli/Salmonella typhimurium
 Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 471
 Result: negative Test Type: In vitro mammalian cell gene mutation test
 Test system: mouse lymphoma cells
 Metabolic activation: with and without metabolic activation
 Method: OECD
 Test Guideline 476 Result: Positive results were obtained in some in vitro tests.
 Test Type: Chromosome aberration test in vitro
 Test system: Chinese hamster lung cells Metabolic activation: with and without metabolic activation
 Method: OECD Test Guideline 473
 Result: negative
 Test Type: Chromosome aberration test in vitro Test system: Human lymphocytes
 Metabolic activation: without metabolic activation Result: positive
 Remarks: (ECHA)
 Test Type: Micronucleus test
 Test system: Human epithelioid cells
 Metabolic activation: without metabolic activation
 Method: OECD Test Guideline 487
 Result: negative
 Test Type: In vivo micronucleus test
 Species: Mouse
 Cell type: Red blood cells (erythrocytes)
 Application Route: Intraperitoneal
 Method: OECD Test Guideline 474
 Result: negative

Carcinogenicity

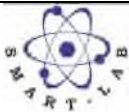
No data available

Reproductive toxicity

No data available

Specific target organ toxicity - single exposure

No data available

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Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Endocrine disrupting properties

Product:

Assessment :

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. Repeated dose toxicity - Rat - male and female - Oral - 13 Weeks - NOAEL (No observed adverse effect level) - 31,52 mg/kg Remarks: (in analogy to similar products) Repeated dose toxicity - Rat - male - Inhalation - 3 Months Repeated dose toxicity - Rat - male and female - Dermal - 28 d - LOAEL (Lowest observed adverse effect level) - 75 mg/kg

RTECS: ZH4810000

Zinc oxide dust or fume can irritate the respiratory tract. Prolonged skin contact can produce a severe dermatitis called oxide pox. Exposure to high levels of dust or fume can cause metallic taste, marked thirst, coughing, fatigue, weakness, muscular pain, and nausea followed by fever and chills. Severe overexposure may result in bronchitis or pneumonia with a bluish tint to the skin., prolonged or repeated exposure can cause:, Reversible liver enzyme abnormalities., Diarrhea To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. The following applies to zinc compounds in general: only slightly absorbable via the gastrointestinal tract. Adstringent effect on mucous membranes. Metal-fume fever after inhalation of large quantities.

Handle in accordance with good industrial hygiene and safety practice.

Section 12 - Ecological Information

12.1 Toxicity

Toxicity to fish semi-static test LC50 - Danio rerio (zebra fish) - 2,525 mg/l - 96 h

Remarks: (ECHA)

Toxicity to daphnia and other aquatic invertebrates

static test EC50 - Daphnia magna (Water flea) - 1 mg/l - 48 h (OECD Test Guideline 202)

Toxicity to algae

static test NOEC - Pseudokirchneriella subcapitata (microalgae) - 0,024 mg/l - 72 h (OECD Test Guideline 201)

Toxicity to bacteria

static test EC50 - activated sludge - > 1.000 mg/l - 3 h (OECD Test Guideline 209)

12.2 Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

12.3 Bioaccumulative potential

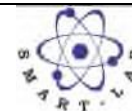
No data available

12.4 Mobility in soil

No data available(Zinc nitrate hexahydrate)

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12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects

Product:

Assessment :

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Section 13 - Disposal Considerations

13.1 Waste treatment methods**Product**

Offer surplus and non-recyclable solutions to a licensed disposal company. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber. Waste material must be disposed of in accordance with the Directive on waste 2008/98/EC as well as other national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself..

Contaminated packaging

Dispose of as unused product.

Section 14 - Transport Information

14.1 UN number

ADR/RID: 3077

IMDG: 3077

IATA: 3077

14.2 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)

14.3 Transport hazard class(es)

ADR/RID: 9

IMDG: 9

IATA: 9

14.4 Packaging group

ADR/RID: III

IMDG: III

IATA: III

14.5 Environmental hazards

ADR/RID: yes

IMDG Marine pollutant: yes

IATA: yes

14.6 Special precautions for user**Further information**

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids. Packages smaller than or equal to 5 kg / L , not dangerous goods of Class 9

Section 15 - Regulatory Information

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

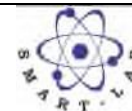
This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

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: ENVIRONMENTAL HAZARDS
 : ENVIRONMENTAL HAZARDS

Other regulations

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out

Section 16 - Additional Information

Full text of H-Statements referred to under sections 2 and 3.

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

National Fire Protection Association (U.S.A.):

Health: 1

Flammability: 0

Reactivity: 0

Revision history :

Date	Rev	Description
Mar 8, 2019	00	-
August 19, 2022	01	thorough revision

Further information

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. PT. Smartlab Indonesia shall not be held liable for any damage resulting from handling or from contact with the above product.