

SAFETY DATA SHEET

ZINC OXIDE

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

1.1. Manufacture

HAKUSUI TECH CO., LTD.

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Tel.No. : +81-6-6373-2811 (9:00 - 17:00 Japan time, weekday only)
Fax.No. : +81-6-6373-0238
Emergency : +81-948-23-0484 (Kysyu Hakusui co., Ltd.)
Use : Paints, Cosmetic Additive, Electronics, Rubber, Ceramics, etc.
MSDS No. : E2-1-5-B

1.2. Product identifier

Product name : ZINC OXIDE
Synonyms, Trade Names : Zinc Oxide No.2, Zinc Oxide No.2G
CAS-No. : 1314-13-2
EU Index No. : 030-013-00-7
EC No. : 215-222-5

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical and Chemical Hazards	Not classified.
Human health	Not classified.
Environment	Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410

Classification (67/548/EEC)

N;R50/53

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

2.2. Label elements

EC No. 215-222-5

Label In Accordance With (EC) No. 1272/2008

Pictogram

Signal Word : Warning



Hazard Statements

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

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Precautionary Statements

P273	Avoid release to the environment.
P391	Collect spillage.
P501	Dispose of contents/container in accordance with local regulations
Supplemental Hazard Statements	none

According to European Directive 67/548/EEC as amended.

Hazard symbol(s)



R-phrase(s)

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

S-phrase(s)

S60 This material and its container must be disposed of as hazardous waste.

S61 Avoid release to the environment. Refer to special instructions/ Safety data sheets.

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

Product name ZINC OXIDE

CAS-No. 1314-13-2

EU Index No. 030-013-00-7

EC No. 215-222-5

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

Component	Classification	Concentration
Zinc oxide		
CAS-No. 1314-13-2	Aquatic Acute 1; Aquatic Chronic 1; H410	≤99.5
EC-No. 215-222-5		
Index-No. 030-013-00-7		

Hazardous ingredients according to Directive 1999/45/EC

Component	Classification	Concentration
Zinc oxide		
CAS-No. 1314-13-2	N, R50/53	≤99.5
EC-No. 215-222-5		
Index-No. 030-013-00-7		

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

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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.

Inhalation

Provide rest, warmth and fresh air. Get medical attention if any discomfort continues.

Ingestion

Rinse mouth thoroughly. Get medical attention if any discomfort continues.

Skin contact

Wash skin thoroughly with soap and water. Get medical attention if irritation persists after washing.

Eye contact

Immediately rinse with water for several minutes. Get medical attention if any discomfort continues.

If swallowed

Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2. Most important symptoms and effects, both acute and delayed**Inhalation**

Sore throat. Headache. Fever. Nausea, vomiting. Exhaustion and weakness. Chill. Muscle pain.

Ingestion May cause nausea, stomach pain and vomiting. Diarrhoea.

4.3. Indication of any immediate medical attention and special treatment needed

NOTE! Effects may be delayed. Keep affected person under observation.

SECTION 5: FIREFIGHTING MEASURES**5.1. Extinguishing media**

Extinguishing media Extinguish with foam, carbon dioxide, dry powder or water fog. Extinguish with dry sand.

Unsuitable extinguishing media Water jet.

5.2. Special hazards arising from the substance or mixture**Unusual Fire & Explosion Hazards**

May develop highly toxic or corrosive fumes if heated.

Specific hazards

The product is non-combustible. If heated, corrosive and toxic vapours/gases may be formed.

5.3. Advice for firefighters

Special Fire Fighting Procedures Move container from fire area if it can be done without risk.

Protective equipment for fire-fighters Wear full protective clothing.

5.4 .Further information

No data available

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SECTION 6: ACCIDENTAL RELEASE MEASURES**6.1. Personal precautions, protective equipment and emergency procedures**

Wear protective clothing as described in Section 8 of this safety data sheet. Do not smoke, use open fire or other sources of ignition. Provide adequate ventilation.

6.2. Environmental precautions

Avoid release to the environment. Do not discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up

Warn everybody of potential hazards and evacuate if necessary. Ventilate well. Collect spillage in containers, seal securely and deliver for disposal according to local regulations. Avoid generation and spreading of dust.

6.4. Reference to other sections

For waste disposal, see section 13.

SECTION 7: HANDLING AND STORAGE**7.1. Precautions for safe handling**

Do not eat, drink or smoke when using the product. Avoid spreading dust. Provide good ventilation. Do not handle until all safety precautions have been read and understood. Avoid breathing dust/fume/gas/mist/vapours/spray.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed. Store in a cool place. Store in a dry place. Store locked up.

Storage Class Chemical storage.

7.3. Specific end use(s)**SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**

The identified uses for this product are detailed in Section 1.2.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1. Control parameters**

<u>Name</u>	<u>STD</u>	<u>TWA - 8 Hrs</u>	<u>STEL - 15 Min</u>	<u>Notes</u>
ZINC OXIDE	WEL	5 mg/m ³	10 mg/m ³	

WEL = Workplace Exposure Limit.

8.2. Exposure controls**Engineering measures**

Provide adequate ventilation, including appropriate local extraction, to ensure that the defined occupational exposure limit is not exceeded.

Respiratory equipment Dust mask/respirator.

Hand protection Use protective gloves.

Eye protection Use tight fitting goggles if dust is generated.

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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.
Other Protection	Provide eyewash station and safety shower. Wear protective clothing.

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. When using do not eat, drink or smoke. Wash contaminated clothing before reuse.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES**9.1. Information on basic physical and chemical properties**

Appearance	Powder
Colour	White.
Odour	Odourless.
Solubility	Insoluble in: water. Alcohols. Soluble in: Acids. Alkalis.
Initial boiling point and boiling range (°C)	Sublimation.

Melting point (°C)	1975 °C
Relative density	5.6 g/ml (25 °C)
Vapour density (air=1)	Not available.
Vapour pressure	Not available.
Evaporation rate	Not available.
pH-Value, Conc. Solution	6.95
pH-Value, Diluted Solution	Not available.
Viscosity	Not available.
Decomposition temperature (°C)	Not available.
Odour Threshold, Lower	Not available.
Odour Threshold, Upper	Not available.
Flash point (°C)	Not available.
Auto Ignition Temperature (°C)	Non-combustible.
Flammability Limit - Lower(%)	Not explosive.
Flammability Limit - Upper(%)	Not explosive.
Partition Coefficient(N-Octanol/Water)	Not available.
Explosive properties	Not available.
Other Flammability	Not available.
Oxidising properties	Not available.

9.2. Other information Not available.

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SECTION 10: STABILITY AND REACTIVITY**10.1. Reactivity**

Violent reaction with: Aluminium powder. Magnesium powder. Chlorinated rubber. (when heated)

10.2. Chemical stability

Stable under normal temperature conditions and recommended use.

10.3. Possibility of hazardous reactions

Hazardous Polymerisation Will not polymerise.

10.4. Conditions to avoid Avoid heat.**10.5. Incompatible materials**

Materials To Avoid Aluminium powder. Magnesium powder. Chlorinated rubber.

10.6. Hazardous decomposition products

When heated, toxic and corrosive vapours/gases may be formed.

SECTION 11: TOXICOLOGICAL INFORMATION**11.1. Information on toxicological effects****Acute toxicity:**

Acute Toxicity (Oral LD50) > 5000 mg/kg Rat

Acute Toxicity (Dermal LD50) Not available.

Acute Toxicity (Inhalation LC50) > 5.7 mg/l (dust/mist) Rat 4 hours

Skin Corrosion/Irritation:

Skin - Rabbit

Result: Mild skin irritation - 24 h

Serious eye damage/irritation:

Eyes - Rabbit

Result: Mild eye irritation - 24 h

Respiratory or skin sensitisation:

Respiratory sensitization Not available.

Skin sensitization

Guinea pig maximization test (GPMT): Guinea Pig Not Sensitising.

Germ cell mutagenicity:

Hamster

Embryo

Unscheduled DNA synthesis

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Hamster
Embryo
Morphological transformation.

Hamster
Embryo
Sister chromatid exchange

Guinea pig
Unscheduled DNA synthesis

Carcinogenicity:

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

Reproductive Toxicity:

Reproductive Toxicity – Fertility Not available.

Specific target organ toxicity - single exposure:

STOT - Single exposure Not available.

Specific target organ toxicity - repeated exposure:

STOT - Repeated exposure Not available.

Aspiration hazard:

Viscosity Not available.

Additional Information

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., Diarrhoea

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

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SECTION 12: ECOLOGICAL INFORMATION**12.1. Toxicity**

Toxicity to fish LC50 - Oncorhynchus mykiss (rainbow trout) - 1,1 mg/l - 96,0 h
 Toxicity to daphnia and other aquatic invertebrates EC50 - Daphnia magna (Water flea) - 0,098 mg/l - 48 h

12.2. Persistence and degradability

Degradability No data available.

12.3. Bioaccumulative potential

Bioaccumulative potential The product is not bioaccumulating.
Bioaccumulation factor BCF 217
Partition coefficient Not available.

12.4. Mobility in soil

Mobility: The product is insoluble in water.

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

Very toxic to aquatic life.

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.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION**14.1. UN number**

ADR/RID: 3077 IMDG: 3077 IATA: 3077

ZINC OXIDE**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.

SECTION 15: REGULATORY INFORMATION**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU Legislation**

Dangerous Substance Directive 67/548/EEC.

Dangerous Preparations Directive 1999/45/EC.

(EC) No 1907/2006 (REACH).

(EC) No 1272/2008 (CLP).

(EU) No 453/2010.

15.2. Chemical Safety Assessment

No chemical safety assessment has been carried out.

SECTION 16: OTHER INFORMATION

Revision Comments This is 3rd issue.

Revision Date 01/08/2015

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

Aquatic Acute Acute aquatic toxicity

Aquatic Chronic Chronic aquatic toxicity

H400 Very toxic to aquatic life.

H410 Very toxic to aquatic life with long lasting effects.

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Full text of R-phrases referred to under sections 2 and 3

N Dangerous for the environment

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Disclaimer

This 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. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.