



SPECIALTY INGREDIENTS, SURFACTANTS, ADDITIVES, COLORS AND MORE

Safety Data Sheet - Zinc Oxide

1. PRODUCT INFORMATION AND COMPANY IDENTIFICATION

Product Name: Zinc Oxide

CAS Number: 1314-13-2

EINECS Number: 215-222-5

Recommended Use:

- Coloring agents, pigments
- Food/feedstuff additives
- Fuels and fuel additives
- Intermediates
- Laboratory chemicals
- Lubricants and lubricant additives
- Plating agents & metal surface treating agents
- Process regulators, component in batteries
- Corrosion inhibitors and anti-scaling agents
- Fertilizers
- Pharmaceutical substance
- Photosensitive agents & photo-chemicals
- Process regulators, used in vulcanization or polymerization processes
- Processing aid, not otherwise listed
- Semiconductors

Company: Chemistry Connection
253 Sturgis Road
Conway, AR 72034
Phone: 501-470-9689

Emergency Contact: Chemtrec: 800-424-9300

2. HAZARD IDENTIFICATION

Classification of the Substance or Mixture

Not regulated in the USA

EEA member countries: Regulated

Classification according to Regulation (EC) No 1272/2008 [CLP]

Aquatic Acute 1: H400

Aquatic Chronic 1, H410

Classification according to Directive 67/548/EEC

Dangerous for the environment; N; R50-53

Additional Information

For full text of R-phrases and Hazard- and EU Hazard-statements: see Section 16.

GHS Labeling

Zinc Oxide. Signal word: Warning.
H410: Very toxic to aquatic life with long lasting effects.
P273: Avoid release to the environment.
P391: Collect spillage.
P501: Dispose of contents/container as hazardous or special waste in accordance with applicable law.



3. COMPOSITION/INFORMATION ON INGREDIENTS

INCI NAME	CAS NO.	CONCENTRATION (%)
Zinc Oxide (ZnO)	1314-13-2	95 – 100

Note: All other constituents are found at trace levels. For further information please consult the individual product grade TDS.

4. FIRST AID MEASURES

Description of first aid measures

Skin Contact: Immediately wash with soap and water. Seek medical attention if irritation occurs.

Eye Contact: Immediately flush eyes with plenty of water. Get medical attention if irritation occurs.

Ingestion: Drink plenty of water. Do not induce vomiting. Seek medical attention or contact Poison Control.

Inhalation: Remove victim to fresh air. Seek medical attention if feeling unwell or experiencing respiratory distress.

Most Important Symptoms and Effects, Both Acute and Delayed

Acute: Dry cough, headache, throat irritation
Delayed: No delayed symptoms or effects expected.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Bad cough, headache, and/or nausea. Move affected individual to fresh air.

5. FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Use an extinguishing media suitable for the surrounding fire.

Unsuitable Extinguishing Media

None known

Special hazards arising from the substance or mixture**Hazards from the Substance**

Water contaminated with this material must be contained and prevented from being discharged to environment.

Hazardous Thermal Decomposition Products

Decomposition products may include Zinc Oxide fumes at high temperatures.

Advice for fire-fighters**Special Protective Actions for Fire Fighters**

No special measures required.

Special Protective Equipment for Fire Fighters

Suitable breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Avoid breathing dust. Refer to Section 7 and Section 8 for advice on handling/storage and PPE.

Environmental Precautions: Prevent contamination of soil, drains, and surface water. Inform relevant authorities of spill where required.

Spill/ Clean Up Procedures: Avoid dry sweeping or other methods which raise dust. Vacuum or wet-sweep and place into a suitable closable, labeled container for disposal. Dispose of waste via licensed waste disposal contractor.

7. HANDLING AND STORAGE**Precautions for Safe Handling**

This product should be used in accordance with good industrial safety practices and industrial hygiene standards and all local, state, federal, and international regulations. Avoid creating airborne dust. Ensure adequate exhaust ventilation. Workers who handle material should wear gloves and thoroughly wash hands/forearms after exposure.

Conditions for Safe Storage/Instabilities

This product should be stored in accordance with all local, state, federal and international regulations. Store in a cool, dry, well ventilated space sealed tightly in the original containers. Protect containers from damage and repair if damage occurs.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

Product/Ingredient Name	8 Hour- TWA (mg/m ³)	15 min-STEEL (mg/m ³)	References
USA	5 (Fumes) 10 (Dust)	10 (Fumes)	ACGIH (1991) (guidance values)
USA	5 (Fumes) 15 (Dust; total) 5 (Dust; respirable)		OSHA (1989) (legal limit values)
The Netherlands	5 (Fumes)		SZW (1997)
Germany	5 (Fumes) 6 (Dust)		DFG (1997)
UK	5 (Fumes) 10 (Dust)		HSE (1998)
Sweden	5 (Fumes)		National Board of Occupation Safety and Health, Sweden (1993)
Denmark	4 (Fumes) 10 (Dust)		Arbejdstilsynet (1992)

Respiratory Controls

Respiratory Protection

Avoid creating dust. If exposure levels exceed limits, respiratory protection approved for the work being performed must be worn.

Hand Protection

Always wear glove approved for the work being performed when handling Zinc Oxide.

Skin Protection

Wear normal chemical work clothing.

Eye Protection

Always wear approved protective eyewear if there is a potential for dust being created while handling the material.

General Protective Hygiene Measures

Use local exhaust ventilation to pro-actively reduce dust levels.

Other

Route(s) of entry

Inhalation and mechanical irritation of eyes and skin

Carcinogen Status

Not a NTP/IARC carcinogen

Signs and symptoms of exposure

Dry throat, cough, and dry itchy skin

Notes

Excess bulk exposure may cause acute respiratory irritation or dry skin

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	White, cream or yellow
Typical Particle Size	d50 typically 1um
Flammability Limits	ZnO is not flammable
Explosive Limits	ZnO is not explosive
Odor	Odorless
Vapor Pressure	@1500C = 12 mm HG
Odor Threshold	Odorless
Vapor Density	N/A
pH	Neutral
Relative Density	Varies
Melting Point	1975 °C
Solubility in Water	2.9 mg/L
Boiling Point	N/A
Flash Point	Not flammable
Evaporation Rate	N/A
Specific Gravity	5.68
Molecular Weight	81.38
Suggested Solvents	Acids and bases
Fire Qualities	Will not burn
Explosive Qualities	Not explosive
Volatile	0.3% nominal

10. STABILITY AND REACTIVITY

Reactivity: Stable under normal, dry conditions.

Chemical Stability: This product is stable.

Possibility of Hazardous Reactions: None

Conditions to Avoid/
Incompatible Materials: Heated magnesium. Chlorinated rubbers above 215°C.

Hazardous Decomposition Products: Potential for ZnO fumes at elevated temperatures.

11. TOXICOLOGICAL INFORMATION

Information on Toxicological Effects

Routes of Entry: Oral, Inhalation

Acute Toxicity: LD₅₀ (rat, inhalation): 7,950 mg/kg (Encyclopedia of Toxicology: Reference Book 2005)

Chronic Toxicity: NOAEL: 50 mg/day (based on human clinical studies)

Mutagenicity: No data available

Carcinogenicity: No data available. Not listed as an IARC Carcinogen. Not listed in the NTP report on carcinogens.

Acute Exposure Symptoms

Eye Contact: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the eyes.

Inhalation: Exposure to airborne concentrations above statutory or recommended exposure limits may cause irritation of the respiratory tract.

Skin Contact: No known significant effects or critical hazards.

Ingestion: No known significant effects or critical hazards.

12. ECOLOGICAL INFORMATION

Toxicity

Product Name	Result	Species	Dose	Exposure	Reference
Zinc Oxide	LC50 Inhalation Dusts and mists	Rat	>5.7mg/L	4 Hours	Klimisch and Freisberg (1982)
Zinc Oxide	LD50 Oral	Rat	15000 mg/kg	N/A	Löser (1972)
Zinc Oxide	LD50 Oral	Rat	>5000 mg/kg	N/A	Löser (1977)

Persistence and Degradability

Not rapidly degradable

Bioaccumulative Potential

No evidence to indicate significant bioaccumulative potential.

Mobility in Soil

No evidence to indicate significant mobility in soil.

Results of PBT and vPvB Assessment

ZnO is not PBT or vPvB

Other Adverse Effects

None

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Product: Generation of product waste should be minimized wherever

possible. Disposal of product, solutions, and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional or local authority requirements. Dispose of surplus and non-recyclable products via licensed waste disposal contractor. Waste should not be released into sewer system unless regulations permit such release.


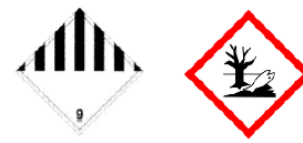
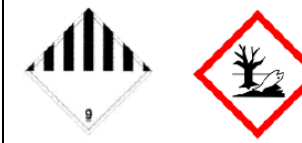
Containers/ Packaging: Generation of packaging waste should be minimized whenever possible. Waste packaging should be recycled when possible. Incineration and/or landfill dumping should only be considered when recycling isn't feasible. Make sure to follow all local, state, federal, and international regulations when disposing of packaging materials.

14. TRANSPORT INFORMATION

US Information

NAFTA Tariff Class: 2817.00.0000, Sched. B
 Country of Origin: USA
 Responsible Party: Kraft Chemical Company
 Classification Code: M7 (Formerly: Item Number 12C)
 Hazard Identification/Reconnaissance No.: 90
 NMFC Class: 55
 US DOT Information: This material is not regulated

EU Information

	ADR/RID	IMDG	IATA
UN Number	UN3077	UN3077	UN3077
UN Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC OXIDE)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC OXIDE), MARINE POLLUTANT (ZINC OXIDE)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (ZINC OXIDE)
Transport Hazard Class(es)			
	Hazard Identification Number: 90	Sea (IMO): DG, MP	IATA Label: Miscellaneous
Packing Group	III	III	III
Environmental Hazards	Yes	Yes, Dangerous to the Environment	Yes
Special Precautions for Users	No	No	Yes (see below)
Additional Information	Tunnel Code (E)		

IATA Special Precautions for Users	IATA – Passenger Aircraft	400 kg (packing group 956)
	IATA – Passenger Aircraft	30 kg (packing group Y956)
	IATA – Cargo Aircraft	400 kg (packing group 956)
	IATA – S.P.	A97, A159, A179

*The EU diamond for Dangerous to the Environment has a red border. A copy of this document may not be in color resulting in the above border incorrectly being displayed in black.

15. REGULATORY INFORMATION

EEA

This SDS complies with GHS-CLP, and EEA/EUI REACH, and SDS rules

USA Regulations

US DOT: Not Transport regulated, 49CFR172
SARA 302: Yes, name listed (Zinc). RQ= None, TPQ= None
SARA 311/312: Yes, acute hazard, 29CFR1200
SARA 313: Yes, Zn & Pb compounds.
CA Prop. 65: Yes, Pb & Cd
CAA 112, 61 HAP: No, not regulated, no HAP's
FIFRA 152 et Seq.: No (product is not subject to FIFRA)
CERCLA 102/103: Name List, RQ=None
NSF 60/61: Submitted NSF, UL
FCC: Listed
CONEG: Compliant
ODS/ODC 82: No
TSCA: Yes, on inventory, Compliant with TSCA, Notification not required.
RCRA 261: If governing spec is > 1000 ppm Pb or >20 ppm Cd, product must be TCLP tested for Pb and Cd to determine if waste product is subject to RCRA.
USFDA: Listed as GRAS at 21CFR 182.8991

TSCA Equivalent "Inventory" Regulations

AICS: Yes
SWISS: Yes
PICCS: Yes
DSL: Yes
NDSL: No
ASIA-PAC: Yes
EINECS: Yes, on inventory
ELINCS: No, notification/reporting not required

16. OTHER INFORMATION

HMIS Ratings: Health – 1 (Slight)

Flammability - 0
Reactivity - 0
Personal Protection - E (in bulk dust conditions only. Gloves, mask, and goggles are recommended.)

CMS Hazard Rating (GHS) Zinc Oxide. Signal word: Warning
H410: Very toxic to aquatic life with long lasting effects.
P273: Avoid release to the environment
P391: Collect spillage
P501: Dispose of contents/container as hazardous or special waste in accordance with applicable law.

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