

1. PRODUCT AND COMPANY IDENTIFICATION

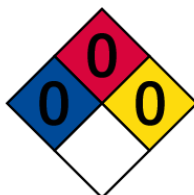
Product Name	Zinc Oxide, Enriched Zinc Oxide
Chemical Formula	ZnO
Molecular Weight:	81.39 amu
CAS No.	1314-13-2
RTECS No.	ZH4810000
Synonyms	Actox 14, Actox 16, Actox 216, AI3-00277, Akro-zinc bar 85, Akro-zinc bar 90, Amalox, Azo-33, Azo-55, Azo-66, Azo-77, Azodox-55, Azodox-55TT, Azo-55TT, Azo-66TT, Azo-77TT, Cadox XX 78, Chinese White, C.I. 77947, C.I. Pigment White 4, Cynku tlenek (Polish), Electox 2500, Emanay zinc oxide, EMAR, Felling zinc oxide, Flowers of zinc, GIAP 10, Green seal-8, Hubbuck's White, Kadox 15, Kadox-25, Kadox 72, K-Zinc, Outmine, Ozide, Ozlo, Permanent White, Philosopher's wool, Powder base 900, Protox type 166, Protox type 167, Protox type 168, Protox type 169, Protox type 267, Protox type 268, Red Seal 9, Snow White, Unichem ZO, Vandem VAC, Vandem VOC, White seal-7, XX 78, XX 203, XX 601, Zinca 20, Zincite, Zincoid, Zinc White, ZN-0401 E 3/16", Zn 0701T
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Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview: Harmful. Harmful by inhalation.

NFPA Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Reactivity = 0



HMIS Ratings: (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

Health Hazard = 0 Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	0
FLAMMABILITY	0

Classification of the substance or mixture**GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

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

GHS Label elements, including precautionary statements

Pictogram



Signal word Warning

Hazard statement(s)

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P273 Avoid release to the environment.**P391** Collect spillage.**P501** Dispose of contents/container to an approved waste disposal plant.**Hazards not otherwise classified (HNOC) or not covered by GHS - none****3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name: Zinc Oxide
 Chemical Formula: ZnO
 CAS No.: 1314-13-2
 EC No.: 215-222-5
 Molecular Weight: 81.39 amu

Hazardous Components

Component	Classification	Concentration
Zinc Oxide	Aquatic Acute 1; Aquatic Chronic 1; H410	≤ 100%

For the full text of the H Statement mentioned in this section, see section 16.

4. FIRST AID MEASURES*General Advice*

Consult a physician. Show this SDS to the doctor in attendance.

Oral Exposure

If swallowed, wash out mouth with water, provided person is conscious. Call a physician.

Inhalation Exposure

If inhaled, remove to fresh air. If breathing becomes difficult, call a physician. If not breathing, give artificial respiration.

Dermal Exposure

In case of contact, immediately wash skin with soap and copious amounts of water. Consult a physician.

Eye Exposure

In case of contact with eyes, flush with copious amounts of water for at least 15 minutes. Assure adequate flushing by separating

the eyelids with fingers. Call a physician.



5. FIREFIGHTING MEASURES

Suitable Extinguishing

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Media

Protective Equipment

Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

Specific Hazard(s)

Zinc/zinc oxides

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Exercise appropriate precautions to minimize direct contact with skin or eyes and prevent inhalation of dust.

Environmental Precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Avoid discharge into the environment.

Methods for Cleaning Up

Sweep up, place in a suitable closed container and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

Handling

Avoid formation of dust and aerosols (further processing of solid materials may result in the formation of combustible dusts). Provide appropriate exhaust ventilation at places where dust may be formed. Avoid inhalation. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.

Storage

Keep tightly closed in a dry and well-ventilated place. Never allow product to get in contact with water during storage. Storage class (TRGS 510): Non Combustible Solids

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls

Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment

Respiratory

For nuisance exposures use type P95 (US) or type P1 (EU EN 143) particle respirator. For higher level protection use type OV/AG/P99 (US) or type ABEK-P2 (EU EN 143) respirator cartridges. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand

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.

Eye

Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

General Hygiene Measures

Wash thoroughly after handling.

Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Basis
Zinc Oxide	1314-13-2	TWA	2.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Metal fume fever		
		STEL	10.000000 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
		Metal fume fever		
		TWA	5.000000 mg/m ³	USA. NIOSH-Recommended Exposure Limits
		TWA	5.000000 mg/m ³	USA. NIOSH-Recommended Exposure Limits
		ST	10.000000 mg/m ³	USA. NIOSH-Recommended Exposure Limits
		C	15.000000 mg/m ³	USA. NIOSH-Recommended Exposure Limits
		TWA	5.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	15.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants
		TWA	5.000000 mg/m ³	USA. Occupational Exposure Limits (OSHA) – Table Z-1 Limits for Air Contaminants

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State
Color
Odor

Powder
White
N/A

Safety Data

Molecular Weight:	81.39 amu	pH:	N/A
Boiling Point/Range:	N/A	Melting Point/Range:	N/A
Freezing Point:	N/A	Vapor Pressure:	N/A
Vapor Density:	N/A	Saturated Vapor Concentration:	N/A
Relative Density:	5.610 g/cm ³	Bulk Density:	N/A
Odor Threshold:	N/A	Volatile%:	N/A
VOC Content:	N/A	Water Content:	N/A
Solvent Content:	N/A	Evaporation Rate:	N/A
Viscosity:	N/A	Surface Tension:	N/A
Partition Coefficient:	N/A	Decomposition Temperature:	N/A
Flash Point:	N/A	Explosion Limits:	N/A
Flammability:	N/A	Autoignition Temperature:	N/A
Refractive Index:	N/A	Optical Rotation:	N/A
Miscellaneous Data:	N/A	Solubility:	N/A

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Stable under recommended storage conditions
<i>Reactivity</i>	No data available
<i>Hazardous Decomposition Products</i>	Zinc/zinc oxides, zinc oxide fumes
<i>Hazardous Polymerization</i>	Will not occur
<i>Incompatible Materials</i>	Strong oxidizing agents

11. TOXICOLOGICAL INFORMATION**Acute Toxicity**

<i>LC50 Inhalation</i>	Mouse – 2500 mg/m ³
<i>LC50 Oral</i>	Mouse – 7950 mg/kg
<i>Dermal</i>	No data available
<i>Skin Corrosion/Irritation</i>	Rabbit – mild skin irritation – 24 h
<i>Serious Eye Damage/Eye Irritation</i>	Rabbit – mild eye irritation – 24 h
<i>Respiratory or Skin Sensitization</i>	No data available
<i>Germ Cell Mutagenicity</i>	Hamster – embryo – unscheduled DNA synthesis Hamster – embryo – morphological transformation Hamster – embryo – sister chromatid exchange Guinea pig – embryo – unscheduled DNA synthesis

Carcinogenicity

<i>IARC</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a probable, possible or confirmed human carcinogen by IARC.
<i>ACGIH</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.
<i>NTP</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
<i>OSHA</i>	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<i>Reproductive Toxicity</i>	No data available
<i>Specific Target Organ Toxicity / Single Exposure</i>	No data available
<i>Specific Target Organ Toxicity / Repeated Exposure</i>	No data available
Reproductive Toxicity	No data available
Specific Target Organ Toxicity	Single exposure – no data available
Specific Target Organ Toxicity	Repeated exposure – no data available

Aspiration Hazard No data available

Additional Information Zinc Oxide dust is generally considered a nuisance dust and is not bio-accumulative. Dust can cause mild mechanical irritation to the eye. No skin irritation is expected from a single short-term exposure to this product. Ingestion of large doses may cause gastrointestinal irritation and vomiting. Inhalation of zinc oxide fume may cause metal fume fever, an illness that lasts less than 48 hours; the "no effect level" for induction of metal fume fever is in the range of 5 to 15 mg/m³.

12. ECOLOGICAL INFORMATION

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

Persistence and Degradability No data available

Bioaccumulative Potential No data available

Mobility in Soil No data available

Results of PBT and vPvB Assessment PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted

Other Adverse Effects An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life.

13. DISPOSAL CONSIDERATIONS

Product Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated Packaging Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT, Not dangerous goods
Proper Shipping Name None
Non--Hazardous for Transport This substance is considered non--hazardous for transport.

IMDG Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide)
UN No.: 3077
Class: 9
Packing Group: III
EMS No.: F--A, S--F



ADR Proper Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc Oxide)
UN No.: 3077

Class: 9
 Packing Group: III
 Labels 9 + "Fish and Tree"
 Hazardous ID No. 90
 Special Provisions 274, 335, 375, 601
 Tunnel Code E



IATA

Proper Shipping Name: Environmentally hazardous substance, solid, n.o.s. (Zinc Oxide)
 UN No.: 3077
 Class: 9
 Packing Group: III
 Labels 9 + "Fish and Tree"
 Special Provisions A97, A158, A179, A197



Relevant IATA Special Provision: A197, as defined below;

"These substances when transported in single or combination packaging containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net weight per single or inner packaging of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packaging meet general provisions of 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8."

Environmental Hazards

**Marine Pollutant:
 Special Marking (ADR, IATA)**



Special precautions for user

Warning: Miscellaneous dangerous substances and articles



Danger code (Kemler) 90

EMS No. F-A,S-F

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable

UN "Model Regulation" UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Zinc acetate), 9, III

15. REGULATORY INFORMATION

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following component is subject to reporting levels established by SARA Title III, Section 313: Zinc oxide / CAS No. 1314-13-2 / Revision Date 2007-03-01.

SARA 311/312 Hazards

No SARA Hazards

Massachusetts Right to Know Components

Zinc oxide / CAS No. 1314-13-2 / Revision Date 2007-03-01

Pennsylvania Right to Know Components

Zinc oxide / CAS No. 1314-13-2 / Revision Date 2007-03-01

New Jersey Right to Know Components

Zinc oxide / CAS No. 1314-13-2 / Revision Date 2007-03-01

California Prop. 65 Components

This product does not contain any chemicals known to the State of California to cause cancer, birth defects or any other reproductive harm.

16. OTHER INFORMATION

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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Revision Note Update supplier address

ISOFLEX USA's Commonly Used Abbreviations and Acronyms*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers

ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)
NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

*One or more of the above-listed items may not appear in this document.

General Disclaimer

For terms and conditions, including limitation of liability, please refer to the purchase agreement in effect between ISOFLEX USA (or any of its affiliates and subsidiaries) and the purchaser.

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