1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	**Zinc Oxide, Depleted in Isotope Zn-64 (DZO)**
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
Supplier Address*	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac / +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
Website	www.isoflex.com
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 = 1 **Flammability = 0** **Reactivity = 0**

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

Health Hazard = 1 **Flammability = 0** **Physical Hazard = 0**

HEALTH HAZARD	1
FLAMMABILITY	0
PHYSICAL HAZARD	0

Potential Health Effects

Skin Contact	May cause skin irritation
Skin Absorption	May be harmful if absorbed through the skin
Eye Contact	May cause eye irritation
Inhalation	Harmful if inhaled; material may be irritating to mucous membranes and upper respiratory tract
Ingestion	May be harmful if swallowed

For additional information on toxicity, please refer to Section 11.

3. COMPOSITION/INFORMATION ON INGREDIENTS

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

4. FIRST AID MEASURES

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 not breathing give artificial respiration. If breathing is difficult, give oxygen.
Dermal Exposure	In case of skin contact, flush with copious amounts of water for at least 15 minutes. Remove contaminated clothing and shoes. Call 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

Flash Point	N/A
Autoignition Temperature	N/A
Flammability	N/A
Suitable Extinguishing Media	Water spray; carbon dioxide, dry chemical powder or appropriate foam

Firefighting

Protective Equipment	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.
Specific Hazard(s)	Emits toxic fumes under fire conditions

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Evacuate area. Wear self-contained breathing apparatus, rubber boots and heavy rubber gloves. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation.
Environmental Precautions	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
Methods for Cleaning Up	Sweep up, place in a bag and hold for waste disposal. Avoid raising dust. Ventilate area and wash spill site after material pickup is complete.

7. HANDLING AND STORAGE

Handling	Do not breathe dust. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure. Provide appropriate exhaust ventilation at places where dust is formed.
Storage	Keep tightly closed in a dry and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls — Safety shower and eye bath. Mechanical exhaust required.

Personal Protective Equipment

Respiratory	Government-approved respirator
Hand	Compatible chemical-resistant gloves
Eye	Chemical safety goggles
General Hygiene Measures	Wash thoroughly after handling

Exposure Limits, RTECS

Country	Source	Type	Value
USA	ACGIH	TWA	5 mg/m^3
		STEL	10 mg/m^3 (FUME)
USA	MSHA Standard-air	TWA	5 mg/m^3 (FUME)
USA	OSHA	PEL	8H TWA 5 mg/m^3, FUME AND RESPI
New Zealand	OEL		
Remarks: check ACGIH TLV			
USA	NIOSH	TWA	5 mg/m^3
		STEL	10 mg/m^3

Exposure Limits

Country	Source	Type	Value
Poland	NDS		5 mg/m^3
Poland	NDSCh		10 mg/m^3
Poland	NDSP		-

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Solid
Form	Powder
Color	Yellow-white

Safety Data

Molecular Weight:	81.39 amu	pH:	N/A
BP/BP Range:	N/A	MP/MP Range:	N/A
Freezing Point:	N/A	Vapor Pressure:	N/A
Vapor Density:	N/A	Saturated Vapor Concentration:	N/A
SG/Density:	5.61 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

Stability	Stable
Materials to Avoid	Strong oxidizing agents
Hazardous Decomposition Products	Zinc/zinc oxides
Hazardous Polymerization	Will not occur

11. TOXICOLOGICAL INFORMATION

Signs and Symptoms of Exposure: 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 exposure can cause reversible liver enzyme abnormalities, diarrhea, peptic ulceration and gastrointestinal hemorrhage.

Acute Toxicity

LD50 Oral (Mouse)	7,950 mg/kg
LC50 Inhalation (Mouse)	2,500 mg/m^3
Dermal	No data available
Skin Corrosion/Irritation	Skin - Rabbit Result: Mild skin irritation - 24 h
Serious Eye Damage/Eye Irritation	Eyes - Rabbit Result: Mild eye irritation - 24 h
Respiratory or Skin Sensitization	No data available
Germ Cell Mutagenicity	Hamster - Embryo - Unscheduled DNA synthesis 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 a probable, possible or confirmed human carcinogen by IARC.

ACGIH	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.
NTP	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.
OSHA	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.
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	RTECS: ZH4810000

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	Contact a licensed professional waste disposal service to dispose of this material. Observe all federal, state and local environmental regulations.
Contaminated Packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT

Proper Shipping Name	None
Non-Hazardous for Transport	This substance is considered to be non-hazardous for transport.

IATA

Proper Shipping Name	Environmentally hazardous substance, solid, n.o.s
IATA UN Number	3077
Hazard Class	9
Packing Group	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 components are 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 311/312 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

Prepared By	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
Issuing Date	January 12, 2014
Revision Date	July 29, 2021
Revision Number	2
Revision Note	Required review and update

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
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
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)
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

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
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
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
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
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.

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Although reasonable care has been taken in the preparation of this document, we extend no warranties and make no representations as to the accuracy or completeness of the information contained herein and assume no responsibility regarding the suitability of this information for the user's intended purposes or for the consequences of its use. Each individual should make a determination as to the suitability of the information for their particular purpose(s).

The above information is believed to be correct but does not purport to be all-inclusive and shall be used only as a guide. ISOFLEX shall not be held liable for any damage resulting from handling or from contact with the above product.