1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	**Zinc Ingot, Enriched Zinc**
Chemical Formula	Zn
Molecular Weight	65.39
CAS No.	7440-66-6
RTECS No.	ZG8600000
Synonyms	Blue powder, Granular zinc, LS 2, LS 6, Merrillite, Rheinzink, Zinc dust, Zinc powder
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 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

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
PHYSICAL HAZARD	0

Potential Health Effects

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

3. COMPOSITION/INFORMATION ON INGREDIENTS

Product Name	Zinc Ingot, Enriched Zinc
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4. FIRST AID MEASURES

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.
Dermal Exposure	In case of contact, immediately wash skin with soap and copious amounts of water.
Ingestion	If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
Inhalation	If symptoms are experienced, remove source of contamination or move victim to fresh air. Obtain medical advice. NOTE: Metal fume fever may develop 3-10 hours after exposure. If symptoms of metal fume fever (flu-like symptoms) develop, obtain medical attention.

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5. FIREFIGHTING MEASURES

Suitable Extinguishing Media	Water spray, carbon dioxide, dry chemical powder or appropriate foam
Autoignition Temperature	Not available
Flash Point	Not available

Firefighting

Protective Equipment	Self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes
Specific Hazard	Emits toxic fumes under fire conditions

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6. ACCIDENTAL RELEASE MEASURES

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

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7. HANDLING AND STORAGE

Handling	Avoid inhalation of dust and vapors. Avoid contact with eyes, skin and clothing. Avoid prolonged or repeated exposure.
Storage	Store in a DRY covered area.

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8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering Controls	Ensure that eyewash stations and safety showers are close to the workstation location. Mechanical exhaust required.

Personal Protective Equipment

Eye	Wear appropriate protective chemical safety goggles.
Hand	Wear appropriate protective gloves to prevent skin exposure.
Respirators	Where zinc oxide or fumes are generated and cannot be controlled to within acceptable levels, use appropriate NIOSH-approved respiratory protection equipment (42CFR84 Class N, R, or P-95 particulate filter cartridge).

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Hygiene Measures	Handle in accordance with good industrial hygiene and safety practices. Wash hands thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Solid
Color	Grey

Safety Data

Molecular Weight:	65.37 amu	pH:	N/A
BP/BP Range:	N/A	MP/MP Range:	419.5 °C
Freezing Point:	N/A	Vapor Pressure:	N/A
Vapor Density:	N/A	Saturated Vapor Concentration:	N/A
SG/Density:	7.14 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

Chemical Stability	Stable under normal temperatures and pressures
Materials to Avoid	Zinc reacts with acids, strong alkalies, chlorides, chlorates, oxides, nitrates, fluorine, and carbon disulfide. The presence of moisture can result in spontaneous combustion.
Hazardous Decomposition Products	Zinc/zinc oxides, zinc oxide fumes may also form.
Hazardous Polymerization	Will not occur

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11. TOXICOLOGICAL INFORMATION

General

Zinc, especially in the metal form, is relatively non-toxic. However, it can react with other materials, such as oxygen or acids, to form compounds that can be potentially toxic. The primary route of exposure would be through the generation and inhalation of zinc oxide fume from welding or burning or overheated melting pots.

Toxicity

Route of Exposure	Skin absorption, inhalation of fumes
Skin/Eye	In most cases dermal exposure to zinc or zinc compounds does not result in any noticeable toxic effects. Zinc metal is not chemically irritating to the eyes.

Inhalation	Excessive quantities of zinc oxide fume inhalation can result in metal fume fever. Symptoms will occur within 3-10 hours and include dryness and irritation of the throat, tightness of the chest and coughing, which may later be followed by flu-like symptoms of fever, malaise, perspiration, frontal headache, muscle cramps, low back pain, occasionally blurred vision, nausea and vomiting. Symptoms are temporary and generally disappear without medical intervention within 24-48 hours of onset with no recognized complications, after-effects or chronic effects.
Ingestion	Irritation of the stomach, resulting in nausea and vomiting.

12. ECOLOGICAL INFORMATION

Ecotoxicity	Zinc in the metallic form has bioavailability and poses no immediate ecological risk. However, its processing or extended exposure in the environment may result in the formation of bioavailable zinc compounds.
In Aquatic Systems	Zinc bioaccumulates in both plants and animals.
Mobility in Soil	The mobility of zinc in soil is dependent on soil conditions, such as cation exchange capacity, pH, redox potential, and chemical species present in the soil. Zinc also bioaccumulates in terrestrial plants, vertebrates and mammals, with plant uptake from soil dependent on the plant species, soil pH and soil composition.

13. DISPOSAL CONSIDERATIONS

Product	Material in the elemental state should be recovered for reuse or recycling. Observe all federal, state and local environmental regulations.

14. TRANSPORT INFORMATION

DOT

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

IATA

Non-Hazardous for Air Transport	Non-hazardous for air transport

15. REGULATORY INFORMATION

U.S.

Ingredient Listed on TSCA Inventory	Yes
Ingredient Listed on Hazardous Communication Standard	No
CERCLA Section 103	Hazardous Substances: Zinc - Yes - RQ: 1000 lb. (454 kg)* * Reporting not required when diameter of the pieces of solid metal released is equal to or exceeds 100 micrometers (0.004 inches)
SARA Section 302	No
SARA Section 311/312	No Hazardous Categories Apply

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SARA Section 313	This product does not contain any toxic chemicals subject to the Toxic Release reporting requirements. However, potential byproducts from working with this product - Zinc (Fume or Dust) / CAS 7440-66-6 - are reportable.
Canadian	*Ingredients Listed on Domestic Substances List*: Yes
	WHMIS Classification: Not applicable. Zinc is not a Controlled Product under CPR.
European Union	*Listed on the European Inventory of Commercial Chemical Substances (EINECS)*: Yes
	EU Classification: Not applicable. Zinc in ingot form is not listed as a dangerous substance.

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16. OTHER INFORMATION

Prepared By	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Issuing Date	September 15, 2014
Revision Date	October 18, 2024
Revision Number	3
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
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.

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