

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	Germanium Oxide, Enriched Germanium Oxide
CAS No.	1310-53-8
RTECS No.	LY5240000
Chemical Formula	GeO ₂
Molecular Weight	104.59 amu
Synonyms	Germanium Dioxide, Germanium (IV) Oxide, Germania, Germanic Acid
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
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Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053 *May include subsidiaries or affiliate companies/divisions
Email	iusa@isoflex.com
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Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

2. HAZARDS IDENTIFICATION

Emergency Overview:

Harmful.

Harmful if swallowed. Irritating to eyes.

OSHA Hazards: Target Organ Effect, Toxic by inhalation. Harmful by ingestion.

Target Organs: Kidney injury may occur. Liver injury may occur.

GHS Classification: Acute toxicity, Inhalation (Category 4). Acute toxicity, Oral (Category 4).

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

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

Health Hazard = 2 Flammability = 0 Reactivity = 0



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

Health Hazard = 2 Flammability = 0 Physical Hazard = 0

HEALTH HAZARD	2
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	

Potential Health Effects

<i>Inhalation</i>	Toxic if inhaled. May cause respiratory tract irritation.
<i>Skin</i>	Harmful if absorbed through skin. May cause skin irritation.
<i>Eyes</i>	May cause eye irritation.
<i>Ingestion</i>	Harmful if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name:	Germanium Oxide
CAS Number:	1310-53-8
Chemical Formula:	GeO ₂
Molecular Weight:	104.59 amu

4. FIRST AID MEASURES

<i>Oral Exposure</i>	If swallowed, wash out mouth with water, provided person is conscious. Call a physician.
<i>Inhalation Exposure</i>	If inhaled, remove patient to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.
<i>Dermal Exposure</i>	In case of contact, immediately wash skin with soap and copious amounts of water.
<i>Eye Exposure</i>	In case of contact, flush eyes immediately with copious amounts of water for at least 15 minutes.

5. FIREFIGHTING MEASURES

<i>Flash Point</i>	N/A
<i>Autoignition Temperature</i>	N/A
<i>Flammability</i>	N/A
<i>Suitable Extinguishing Media</i>	Noncombustible. Use extinguishing media appropriate to surrounding fire conditions. Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes.

6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Wear respirator, chemical safety goggles, rubber boots, and heavy rubber gloves.
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<i>Environmental Precautions</i>	Do not let product enter drains.
<i>Methods for Cleaning Up</i>	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

<i>Handling</i>	User Exposure: Avoid inhalation. Avoid contact with eyes, skin, and clothing. Avoid prolonged or repeated exposure.
<i>Storage</i>	Keep tightly closed. Store in a cool dry place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<i>Engineering Controls</i>	Safety shower and eye bath. Mechanical exhaust required.
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Personal Protective Equipment

<i>Respiratory</i>	Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU). Where risk assessment shows air-purifying respirators are appropriate, use a dust mask type N95 (US) or type P1 (EN 143) respirator.
<i>Hand</i>	Compatible chemical-resistant gloves.
<i>Eye</i>	Chemical safety goggles.
<i>Body</i>	Complete suit protecting against chemicals.
<i>General Hygiene Measures</i>	Wash contaminated clothing before reuse. Wash thoroughly after handling.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form	Powder
Color	White

Safety Data

Molecular Weight:	104.59 amu	pH:	N/A
BP/BP Range:	N/A	MP/MP Range:	400 °C
Freezing Point:	N/A	Vapor Pressure:	N/A
Vapor Density:	N/A	Saturated Vapor Concentration:	N/A
SG/Density:	6.239 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

N/A = not available

10. STABILITY AND REACTIVITY

<i>Chemical Stability</i>	Stable under recommended storage conditions
<i>Materials to Avoid</i>	Strong oxidizing agents
<i>Hazardous Decomposition Products</i>	Nature of decomposition products not known

11. TOXICOLOGICAL INFORMATION

Routes of Exposure

<i>Skin Contact</i>	May cause skin irritation
<i>Skin Absorption</i>	May be harmful if absorbed through the skin
<i>Eye Contact</i>	May cause eye irritation
<i>Inhalation</i>	May be harmful if inhaled
<i>Ingestion</i>	Harmful if swallowed

Acute Toxicity^R

<i>Oral LD50</i>	1,250 mg/kg (rat)
<i>Inhalation LC50</i>	4 h - > 1,420 mg/m ³ (Rat)
	Remarks: Lungs, Thorax, or Respiration: Dyspnea. Skin and Appendages: Other: Hair. Nutritional and Gross Metabolic: Weight loss or decreased weight gain.
<i>Dermal LD50</i>	No data available
<i>Other Information on Acute Toxicity</i>	No data available

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>Target Organs or Systems</i>	Damage to the kidneys. Damage to the liver.
<i>Signs or Symptoms of Exposure</i>	Blood effects. Damage to the liver. Electrolyte imbalance. Neurotoxic effects. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated. Prolonged exposure can cause: Damage to the kidneys.

12. ECOLOGICAL INFORMATION

<i>Persistence and Degradability</i>	No data available
<i>Bioaccumulative Potential</i>	No data available
<i>Mobility in Soil</i>	No data available
<i>PBT and vPvB Assessment</i>	No data available
<i>Other Adverse Effects</i>	No data available

13. DISPOSAL CONSIDERATIONS

<i>Product</i>	Bury in a landfill site approved for the disposal of chemical and hazardous wastes. Observe all federal, state, and local environmental regulations. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material.
<i>Contaminated Packaging</i>	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT	
<i>Proper Shipping Name</i>	None
<i>Non-Hazardous for Transport</i>	This substance is considered to be non-hazardous for transport.
IATA	
<i>Non-Hazardous for Air Transport</i>	Non-hazardous for air transport.

15. REGULATORY INFORMATION

OSHA Hazards	Target Organ Effect, Toxic by inhalation. Harmful by ingestion.
SARA 302 Components	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Components	This material does not contain any chemical components with known CAS numbers that exceed the threshold (<i>De Minimis</i>) reporting levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	Acute Health Hazard, Chronic Health Hazard
Massachusetts Right to Know Components	No components are subject to the Massachusetts Right to Know Act.
Pennsylvania Right to Know Components	Germanium dioxide / CAS No. 1310-53-8
New Jersey Right to Know Components	Germanium dioxide / CAS No. 1310-53-8

16. OTHER INFORMATION

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PO Box 472615
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Issuing Date November 10, 2014

Revision Date May 10, 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)
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
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
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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