Safety Data Sheet

Version 1.5
Revision Date 10/18/2024

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	**Xenon (inert gas), Enriched Xenon**
Chemical Formula	Xe
Molecular Weight	131.293
Form	Gas
CAS No.	7440-63-3
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

Emergency Overview CAUTION! High-pressure gas. Can cause rapid suffocation. May cause dizziness and drowsiness. Self-contained breathing apparatus may be required by rescue workers.
Odor: None

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

Skin	No harm expected from vapor; liquid may cause frostbite
Eyes	No harm expected from vapor; liquid may cause frostbite
Inhalation	Asphyxiant. Effects are due to lack of oxygen. Moderate concentrations may cause headaches, drowsiness, dizziness, excitation, excess salivation, vomiting and unconsciousness. Lack of oxygen can kill. Oxygen deficiency during pregnancy has produced developmental abnormalities in humans and experimental animals.
Ingestion	This product is a gas at normal temperature and pressure.
Chronic	No evidence of adverse effects from available information
Medical Condition Aggravated By Exposure	The toxicology and the physical and chemical properties of this product suggest that overexposure is unlikely to aggravate any existing medical condition.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Xenon
CAS No.:	7440-63-3
Chemical Formula:	Xe
Molecular Weight:	131.293

4. FIRST AID MEASURES

Dermal Exposure	If exposed to liquid, avoid breathing vapor. Immediately warm frostbite area with warm water (not to exceed 40 °C). In case of massive exposure, remove clothing and shoes while showering with warm water. Get medical attention immediately. Wash with soap, then rinse thoroughly.
Eye Exposure	For contact with the liquid, immediately flush eyes thoroughly with warm water for at least 15 minutes. Hold the eyelids open and away from the eyeballs to ensure that all surfaces are flushed thoroughly. See a physician, preferably an ophthalmologist, immediately.
Inhalation Exposure	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.
Notes to Physician	There is no specific antidote. Treatment of over-exposure should be directed at the control of symptoms and the clinical condition.

5. FIREFIGHTING MEASURES

Flash Point	Not applicable
Autoignition Temperature	Not applicable
Suitable Extinguishing Media	Xenon cannot catch fire. Use media appropriate for any surrounding fire.
Special Firefighting Procedures	CAUTION! Evacuate all personnel to a safe distance. Immediately deluge containers with water spray from maximum distance until cool, then move containers away from fire area if without risk. See Unusual Fire and Explosion Hazards.
Unusual Fire and Explosion Hazards	Xenon cannot catch fire. Heat of fire can build pressure in cylinder and cause it to rupture. No part of cylinder should be subjected to a temperature higher than 125 °F (52 °C).
Hazardous Combustion Products	None

Sensitivity to Impact	Avoid impact against container
Sensitivity to Static Discharge	Not applicable

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	CAUTION! High-pressure gas. Evacuate all personnel from danger area. Use self-contained breathing apparatus where needed. Test for sufficient oxygen, especially in confined spaces, before allowing reentry.
Environmental Precautions	Prevent waste from contaminating the surrounding environment. Keep personnel away.
Methods for Cleaning Up	Shut off flow if you can do so without risk. Ventilate area or move cylinder to a well-ventilated areas.

7. HANDLING AND STORAGE

Handling

Protect cylinders from damage. Use a suitable hand truck to move cylinders; do not drag, roll, slide or drop. Electrical equipment must be non-sparking or explosion-proof. Leak-check system with soapy water; never use a flame. Never attempt to lift a cylinder by its cap; the cap is intended solely to protect the valve. Never insert an object (e.g., wrench, screwdriver, pry bar) into cap openings; doing so may damage the valve and cause a leak. Use an adjustable strap wrench to remove over-tight or rusted caps. Open valve slowly. If valve is hard to open, discontinue use and contact your supplier.

High-pressure gas. Use piping and equipment adequately designed to withstand pressures to be encountered. Gas can cause rapid suffocation due to oxygen deficiency. Store and use with adequate ventilation. Close valve after each use; keep closed even when empty. Prevent reverse flow. Reverse flow into cylinder may cause rupture. Use a check valve or other protective device in any line or piping from the cylinder. When returning cylinder to supplier, be sure valve is closed, then install valve outlet plug tightly. Never work on pressurized system. If there is a leak, close the cylinder valve. Vent the system down in a safe and environmentally sound manner in compliance with all federal, state/provincial and local laws; then repair the leak. Never place a compressed gas cylinder where it may become part of an electrical circuit.

Storage

Store and use with adequate ventilation. Firmly secure cylinders upright to keep them from falling or being knocked over. Screw valve protection cap firmly in place by hand. Store only where temperature will not exceed 52 °C. Store full and empty cylinders separately. Use a first-in, first-out inventory system to prevent storing full cylinders for long periods of time.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Threshold Limit Value

Asphyxiant.
TLV-TWA Data from 2007 *Guide to Occupational Exposure Values* (ACGIH). TLV-TWAs should be used as a guide in the control of health hazards and not as fine lines between safe and dangerous concentrations.

Routes of Exposure

Inhalation

Skin contact

Eye contact

Engineering Controls

Local exhaust is preferable, if necessary, to prevent oxygen deficiency. Mechanical (general) – General exhaust ventilation may be acceptable if it can maintain an adequate supply of air.

Personal Protective Equipment

Respiratory Protection	None required under normal use. However, air-supplied respirators are required while working in confined spaces with this product. Respiratory protection must conform to OSHA rules as specified in 29 CFR 1910.134. Select per OSHA 29 CFR 1910.134 and ANSI Z88.2.
Hand Protection	Wear work gloves when handling cylinders.
Eye Protection	Safety glasses are recommended. Select in accordance with OSHA 29 CFR 1910.133.
Other Protective Equipment	Metatarsal shoes for container handling. Select in accordance with OSHA 29 CFR 1910.132 and 1910.133. Regardless of protective equipment, never touch live electrical parts.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical State	Gas
Color	Colorless
Odor	Odorless

Safety Data

Freezing Point:	-111 °C (-167.8 °F)
pH:	Not applicable
Vapor Pressure:	Not applicable
Boiling Point:	-108.11 °C (-162.6 °F)
Molecular Weight:	131.293
Specific Gravity (Water = 1):	3.52 @ -109 °C
Specific Gravity (Air = 1):	4.56 @ 21.1 °C
Vapor Density:	0.00547 g/ml @ 21.1 °C
Solubility in Water:	Negligible

10. STABILITY AND REACTIVITY

Stability	This product is stable.
Conditions to Avoid	Not available
Materials to Avoid	This material is chemically unreactive but not completely inert.
Hazardous Decomposition Products	None
Hazardous Polymerization	None

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Inhalation	No data available
Dermal	No data available
Skin Corrosion/Irritation	No data available
Serious Eye Damage/Eye Irritation	No data available
Respiratory or Skin Sensitization	No data available
Germ Cell Mutagenicity	No data available

Carcinogenicity

IARC	No
NTP	No
OSHA	No
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.
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: Not available

12. ECOLOGICAL INFORMATION

No adverse ecological effects expected. This product does not contain any Class I or Class II ozone-depleting chemicals. The components of this mixture are not listed as marine pollutants by TDG Regulations.

13. DISPOSAL CONSIDERATIONS

Product	Do not attempt to dispose of residual or unused quantities. Discard and product, residue, disposable container, or liner in an environmentally acceptable manner, in full compliance with federal, state/provincial, and local regulations. If necessary, call your supplier for assistance.
Contaminated Packaging	Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT/IATA

Proper Shipping Name	Xenon
Hazard Class	2.2 (Non-flammable, non-corrosive and non-poisonous gas)
UN No.	UN 2036
Shipping Label	Non-flammable, non-poisonous gas
Special Shipping Information	Cylinders should be transported in a secure position, in a well-ventilated vehicle. Cylinders transported in an enclosed, non-ventilated compartment of a vehicle can present serious safety hazards.

15. REGULATORY INFORMATION

REACH Number	A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
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 (De Minimis) reporting

	levels established by SARA Title III, Section 313.
SARA 311/312 Hazards	Sudden Release of Pressure Hazard
Massachusetts Right to Know Components	No components are subject to the Massachusetts Right to Know Act.
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 472615 San Francisco CA 94147 United States
Issuing Date	December 29, 2014
Revision Date	October 18, 2024
Revision Number	5
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.

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.