

1. **PRODUCT AND COMPANY IDENTIFICATION**

Product Name	Lithium-7 (Li-7)
CAS No.	13982-05-3
EC No.	231-102-5
Chemical Formula	Li
Molecular Weight	6.9410 g/mol
Identified Use	Scientific research and development
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**

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



GHS02 Flame

Water-react. 1 H260 In contact with water releases flammable gases, which may ignite spontaneously.



GHS05 Corrosion

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Hazards not otherwise classified: *No information known.*

Label Elements

GHS label elements *The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)*

Hazard pictograms



GHS02 GHS05

Signal Word Danger

Hazard statements

H260 In contact with water releases flammable gases, which may ignite spontaneously.

H314 Causes severe skin burns and eye damage.

Precautionary statements

P223 Do not allow contact with water.

P231+P232 Handle under inert gas. Protect from moisture.

P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

P305+P351+P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/ international regulations.

WHMIS classification

B6 – Reactive flammable material

D2B – Toxic material causing other toxic effects

E – Corrosive material



Classification system

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

Health Hazard = 3 Flammability = 2 Reactivity = 2



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

Health Hazard = 3 Flammability = 3 Physical Hazard = 3

HEALTH HAZARD	3
FLAMMABILITY	3
PHYSICAL HAZARD	3

Other Hazards

Results of PBT and vPvB assessment

PBT: Not applicable

vPvB: Not applicable

3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name:	Lithium
Chemical Formula:	Li
Molecular Weight:	6.9410 g/mol
CAS No.:	13982-05-3
EC No.:	231-102-5

4. FIRST AID MEASURES

<i>Eyes</i>	Rinse opened eyes immediately under running water for several minutes, then consult a doctor.
<i>Skin</i>	Wash with plenty of soap and water and rinse thoroughly. Seek immediate medical advice.
<i>Ingestion</i>	Seek medical treatment immediately.
<i>Inhalation</i>	Supply fresh air. If required, provide artificial respiration. Keep patient warm. Seek immediate medical advice.
<i>Notes to Physician</i>	Most important symptoms and effects, both acute and delayed: Causes severe skin burns.

5. FIREFIGHTING MEASURES

<i>Special Hazards</i>	Reacts violently with water. If this product is involved in a fire, lithium oxide can be released.
<i>Suitable Extinguishing Agent</i>	Special powder for metal fires. Do not use water.
<i>Unsuitable Extinguishing Agent</i>	Water
<i>Special Information</i>	Protective equipment: Wear self-contained respirator. Wear fully protective impervious suit.

6. ACCIDENTAL RELEASE MEASURES

<i>General Information</i>	Use proper personal protective equipment as indicated in Section 8.
<i>Personal Precautions</i>	Wear protective equipment. Keep unprotected persons away. Ensure adequate ventilation. Keep away from ignition sources.
<i>Environmental Precautions</i>	Do not allow product to reach sewage system or any water course.
<i>Containment and Cleanup</i>	Use neutralizing agent. Dispose of contaminated material as waste according to Section 13. Ensure adequate ventilation. Do not flush with water or aqueous cleansing agents.
<i>Prevention of Secondary Hazards</i>	Keep away from ignition sources.

Reference to Other Sections

	See Section 7 for information on safe handling
	See Section 8 for information on personal protection equipment
	See Section 13 for disposal information
<i>Protective Action Criteria for Chemicals</i>	PAC-1: 3.3 mg/m ³
	PAC-2: 3.6 mg/m ³
	PAC-3: 220 mg/m ³

7. HANDLING AND STORAGE

<i>Handling</i>	Keep container tightly sealed. Store in cool, dry place in tightly closed containers. Ensure good ventilation at the workplace.
<i>Storage</i>	Store away from water/moisture. Do not store together with acids. Store away from oxidizing agents.
<i>Further Information about Storage Conditions</i>	Protect from humidity and water. Keep container tightly sealed. Store in cool, dry conditions in well-sealed containers.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

<i>Technical System Design</i>	Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.
<i>Control Parameters</i>	Components with limit values that require monitoring at the workplace: The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
<i>General Measures</i>	Usual precautionary measures for handling chemicals should be followed. Keep away from foodstuffs, beverages and feed. Remove all soiled and contaminated clothing immediately. Wash hands before breaks and at the end of work. Avoid contact with eyes and skin. Maintain an ergonomically appropriate working environment.
<i>Breathing Equipment</i>	Use suitable respirator when high concentrations are present. Recommended filter device for short term use: Use a respirator with type P100 (USA) or P3 (EN 143) cartridges as a backup to engineering controls. Risk assessment should be performed to determine if air-purifying respirators are appropriate. Only use equipment tested and approved under appropriate government standards.
<i>Hand Protection</i>	Impervious nitrile rubber (NBR) gloves. Check protective gloves prior to each use for their proper condition. Selection of suitable gloves depends not only on material but also on quality.
<i>Eye Protection</i>	Tightly sealed goggles
<i>Full Face Protection</i>	Safety glasses with side shields / NIOSH (US) or EN 166 (EU)
<i>Body Protection</i>	Protective work clothing

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

<i>Form</i>	Solid
<i>Color</i>	Black to gray
<i>Odor</i>	Odorless

Safety Data

pH:	Not applicable
Vapor Pressure:	0 hPa at 20 °C (68 °F)
Vapor Density:	0.53 g/cm ³ (4.423 lb/gal) at 20 °C (68 °F)
Evaporation Rate:	Not applicable
Viscosity:	Not applicable
Boiling Point:	1342 °C (2448 °F)

Melting Point:	180.5 °C (357 °F)
Autoignition Temperature:	Not determined
Flash Point:	Not applicable
Explosion Limits	
Lower:	Not determined
Upper:	Not determined
Solubility:	Reacts violently. Contact with water releases flammable gases.

10. STABILITY AND REACTIVITY

<i>Reactivity</i>	Reacts violently with water. In contact with water, releases flammable gases, which may ignite spontaneously.
<i>Chemical Stability</i>	Stable under recommended storage conditions.
<i>Conditions to Avoid</i>	Decomposition will not occur if used and stored according to specifications.
<i>Hazardous Reactions</i>	Reacts with strong oxidizing agents. Contact with water releases flammable gases. Reacts violently with water.
<i>Incompatible Materials</i>	Acids, oxidizing agents, water/moisture.
<i>Hazardous Decomposition Products</i>	Lithium oxide

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Swallowing will lead to a strong corrosive effect on mouth and throat and to the danger of perforation of esophagus and stomach.

The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance.

LD50/LC50 values relevant for classification: No data

<i>Skin irritation or corrosion:</i>	<i>Causes severe skin burns</i>
<i>Eye irritation or corrosion:</i>	<i>Causes serious eye damage</i>
<i>Sensitization:</i>	<i>No sensitizing effects known</i>
<i>Germ cell mutagenicity:</i>	<i>The Registry of Toxic Effects of Chemical Substances (RTEC) contains mutation data for this substance.</i>
<i>Carcinogenicity:</i>	<i>No classification data on carcinogenic properties of this material are available from the EPA, IARC, NTP, OSHA or ACGIH.</i>
<i>Reproductive toxicity:</i>	<i>The Registry of Toxic Effects of Chemical Substances (RTEC) contains reproductive data for this substance.</i>
<i>Specific target organ system toxicity – repeated exposure:</i>	<i>No effects known</i>
<i>Specific target organ system toxicity – single exposure:</i>	<i>No effects known</i>
<i>Aspiration hazard:</i>	<i>No effects known</i>
<i>Subacute to chronic toxicity:</i>	<i>The Registry of Toxic Effects of Chemical Substances (RTEC) contains multiple dose toxicity data for this substance.</i>
<i>Additional toxicological information:</i>	<i>To the best of our knowledge, the acute and chronic toxicity of this substance are not fully known.</i>

12. ECOLOGICAL INFORMATION

<i>Aquatic Toxicity</i>	<i>No further relevant information available</i>
<i>Persistence and Degradability</i>	<i>No further relevant information available</i>

Bioaccumulative Potential

No further relevant information available

Mobility in Soil

No further relevant information available

Results of PBT and
vPvB Assessment

Not applicable

Other Adverse Effects

No further relevant information available

General Notes

Avoid transfer into the environment.

13. DISPOSAL CONSIDERATIONS

Waste Treatment Methods

Consult state, local or national regulations to ensure proper disposal.

Contaminated Packaging

Disposal must be made according to official regulations.

14. TRANSPORT INFORMATION

UN Number

DOT, IMDG, IATA

UN1415

UN Proper Shipping Name

DOT

Lithium

ADR

1415 Lithium

IMDG, IATA

LITHIUM

Transport Hazard Class(es)

DOT Class Label



4.3 Substances which, in contact with water, emit flammable gases

4.3

ADR Class Label



4.3 (W2) Substances which, in contact with water, emit flammable gases

4.3

IMDG, IATA Class Label



4.3 Substances which, in contact with water, emit flammable gases

4.3

Packing Group

(DOT, ADR, IMDG, IATA)

I

Environmental Hazards

Not applicable

Special precautions for user

Warning: Substances which, in contact with water, emit flammable gases

EMS Number

F-G, S-N

Stowage Category

E

Handling Code H1 Keep as dry as reasonably practicable
Segregation Code SG26 In addition: from goods of classes 2.1 and 3 when stowed on deck of a containership a minimum distance of two container spaces athwartship shall be maintained, when stowed on ro-ro ships a distance of 6 m athwartship shall be maintained.
 Stow "separated from" acids.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

Transport/Additional Information:

DOT Quantity Limitations On passenger aircraft/rail: Forbidden
DOT Marine Pollutant No

IMDG Limited Quantities (LQ) 0
IMDG Excepted Quantities (EQ) Code: E0
 Not permitted as Excepted Quantity

UN "Model Regulation" UN 1415 LITHIUM, 4.3, I

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

GHS label elements The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)



GHS02



GHS05

Signal Word: Danger

Hazard statements

H260 In contact with water releases flammable gases, which may ignite spontaneously.

H314 Causes severe skin burns and eye damage.

Precautionary statements

P223 Do not allow contact with water.
 P231+P232 Handle under inert gas. Protect from moisture.
 P303+P361 +P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
 P305+P351 +P338 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations

All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings) Substance is not listed.

California Proposition 65

Prop 65 - Chemicals known to cause cancer	Substance is not listed.
Prop 65 - Developmental toxicity	Substance is not listed.
Prop 65 - Developmental toxicity, female	Substance is not listed.
Prop 65 - Developmental toxicity, male	Substance is not listed.

Other regulations, limitations and prohibitive regulations

Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.
Substance is not listed.

The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.
Substance is not listed.

Annex XIV of the REACH Regulations (requiring Authorisation for use) Substance is not listed.

Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16. OTHER INFORMATION

<i>Prepared By</i>	ISOFLEX USA PO Box 29475 San Francisco CA 94129 United States
<i>Issuing Date</i>	December 13, 2018
<i>Revision Date</i>	September 24, 2021
<i>Revision Number</i>	3
<i>Revision Note</i>	Data 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
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.