

SAFETY DATA SHEET

Creation Date 06-Apr-2010

Revision Date 14-Mar-2026

Revision Number 11

This safety data sheet was created pursuant to the requirements of: US OSHA Hazard Communication Standard 2024 (29 CFR 1910.1200)

1. Identification

Product Name n-Butyllithium, 2.5M solution in hexanes

Cat No. : AC213350000; AC213350150; AC213350500; AC213351000;
AC213351300; AC213358000

Synonyms No information available

Recommended Use Laboratory chemicals.

Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Fisher Scientific Company
One Reagent Lane
Fair Lawn, NJ 07410
Tel: (201) 796-7100

Acros Organics
One Reagent Lane
Fair Lawn, NJ 07410

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

This chemical is considered hazardous according to [US] OSHA (29 CFR 1910.1200, 2024)

Flammable liquids	Category 2
Substances/mixtures which, in contact with water, emit flammable gases	Category 1
Pyrophoric liquids	Category 1
Skin Corrosion/Irritation	Category 1 B
Serious Eye Damage/Eye Irritation	Category 1
Reproductive Toxicity	Category 2
Specific target organ toxicity (single exposure)	Category 3
Target Organs - Respiratory system, Central nervous system (CNS).	
Specific target organ toxicity - (repeated exposure)	Category 1
Target Organs - Liver, Central nervous system (CNS), Peripheral Nervous System (PNS).	
Aspiration Toxicity	Category 1

Label Elements**Signal Word**

Danger

Hazard Statements

Highly flammable liquid and vapor

In contact with water releases flammable gases which may ignite spontaneously

Catches fire spontaneously if exposed to air

May be fatal if swallowed and enters airways

Causes severe skin burns and eye damage

May cause respiratory irritation

May cause drowsiness or dizziness

Suspected of damaging fertility

Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use

Do not handle until all safety precautions have been read and understood

Do not breathe dust/fume/gas/mist/vapors/spray

Wash face, hands and any exposed skin thoroughly after handling

Use only outdoors or in a well-ventilated area

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking

Keep container tightly closed

Ground and bond container and receiving equipment

Use explosion-proof electrical/ventilating/lighting equipment

Do not allow contact with air

Do not allow contact with water

Handle and store contents under inert gas. Protect from moisture

Keep cool

Wear protective gloves/protective clothing/eye protection/face protection

Take action to prevent static discharges

Use non-sparking tools

Response

Immediately call a POISON CENTER or doctor

Inhalation

IF INHALED: Remove person to fresh air and keep comfortable for breathing

Skin

Take off contaminated clothing and wash before reuse

IF ON SKIN: Immerse in cool water or wrap in wet bandages

IF ON SKIN: Brush off loose particles from skin. Immerse in cool water or wrap in wet bandages

Eyes

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing

Ingestion

Do NOT induce vomiting

Rinse mouth

FireIn case of fire: Use CO₂, dry chemical, or foam to extinguish**Storage**

Store locked up

Store in a well-ventilated place. Keep container tightly closed

Store contents under inert gas

Store in a dry place. Store in a closed container

Disposal

Dispose of contents/container to an approved waste disposal plant

Hazards not otherwise classified (HNOC)

Toxic to aquatic life with long lasting effects

Hazards classified under paragraph (d)(1)(ii) of 1910.1200**Hazards resulting from a reaction with other chemicals under normal conditions of use**

Reacts violently with water.

WARNING. Reproductive Harm - <https://www.p65warnings.ca.gov/>.

3. Composition/information on Ingredients

Component	CAS No	Weight %
Hexane	110-54-3	77
Butyl lithium	109-72-8	23

4. First-aid measures

General Advice	Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.
Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Call a physician immediately.
Inhalation	If not breathing, give artificial respiration. Remove from exposure, lie down. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a physician immediately. Risk of serious damage to the lungs (by aspiration).
Ingestion	Do NOT induce vomiting. Clean mouth with water. Never give anything by mouth to an unconscious person. Call a physician immediately. Call a physician or poison control center immediately. If vomiting occurs naturally, have victim lean forward.
Most important symptoms and effects	Causes burns by all exposure routes. Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting: Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation
Notes to Physician	Treat symptomatically

5. Fire-fighting measures

Suitable Extinguishing Media	Water spray, fog or alcohol-resistant foam. Water mist may be used to cool closed containers.
Unsuitable Extinguishing Media	DO NOT USE WATER, Carbon dioxide (CO2), Foam

Flash Point	-21 °C / -5.8 °F
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	7.40 vol %
Lower	1.20 vol %
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. The product causes burns of eyes, skin and mucous membranes. Reacts violently with water. Flammable. Containers may explode when heated. Vapors may form explosive mixtures with air. Vapors may travel to source of ignition and flash back.

Hazardous Combustion Products

Butane. Carbon monoxide (CO). Carbon dioxide (CO₂).

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

NFPA

Health
3

Flammability
4

Instability
2

Physical hazards
W

6. Accidental release measures

Personal Precautions	Use personal protective equipment as required. Ensure adequate ventilation. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak. Remove all sources of ignition. Take precautionary measures against static discharges.
Environmental Precautions	Do not flush into surface water or sanitary sewer system.
Methods for Containment and Clean Up	Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Do not expose spill to water. Remove all sources of ignition. Use spark-proof tools and explosion-proof equipment.

7. Handling and Storage

Handling	Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Use only under a chemical fume hood. Do not breathe mist/vapors/spray. Do not ingest. If swallowed then seek immediate medical assistance. Do not allow contact with water. Handle under an inert atmosphere. Keep away from open flames, hot surfaces and sources of ignition. Use only non-sparking tools. To avoid ignition of vapors by static electricity discharge, all metal parts of the equipment must be grounded. Take precautionary measures against static discharges.
Storage.	Store under an inert atmosphere. Keep away from water or moist air. Keep refrigerated. Keep away from heat, sparks and flame. Flammables area. Air sensitive. Keep container tightly closed. Incompatible Materials. Strong oxidizing agents. Halogens. Bases. Acids. Alcohols.

8. Exposure controls / personal protection

Exposure Guidelines

Component	ACGIH TLV	OSHA PEL	NIOSH	Mexico OEL (TWA)
Hexane	TWA: 50 ppm Skin	(Vacated) TWA: 50 ppm (Vacated) TWA: 180 mg/m ³ TWA: 500 ppm TWA: 1800 mg/m ³	IDLH: 1100 ppm REL = 50 ppm (TWA) REL = 180 mg/m ³ (TWA)	TWA: 50 ppm

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Engineering Measures

Use only under a chemical fume hood. Use explosion-proof electrical/ventilating/lighting equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

Personal Protective Equipment**Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin and body protection

Wear appropriate protective gloves and clothing to prevent skin exposure.

Respiratory Protection

Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance**Physical State**

Liquid

Color

Yellow

Odor

Petroleum distillates

Odor Threshold

No information available

PropertyValuesRemarks• Method**Melting Point/Range**

No data available

Softening Point

No data available

Boiling Point/Range

No information available

Flash Point

-21 °C / -5.8 °F

Method - No information available**Flammability (liquid)**

Highly flammable

On basis of test data

Flammability (solid,gas)

Not applicable

Liquid

Explosion Limits**Lower** 1.2 vol %**Upper** 7.8 vol %**Autoignition Temperature**

No data available

Decomposition Temperature

No data available

pH

Not applicable

Viscosity

No data available

Water Solubility

Reacts with water

Solubility in other solvents

No information available

Partition Coefficient (n-octanol/water)**Component****log Pow**

Hexane

4.11

Vapor Pressure

160 mbar @ 20 °C

Density / Specific Gravity

0.690

Bulk Density

Not applicable

Liquid

Vapor Density

No data available

(Air = 1.0)

Particle characteristics Not applicable (liquid)

Other Information

Molecular Formula C₄ H₉ Li
Molecular Weight 64.06
Explosive Properties Vapors may form explosive mixtures with air
Substances/mixtures which, in contact with water, emit flammable gases Emitted gas ignites spontaneously

10. Stability and reactivity

Reactive Hazard Yes

Stability Pyrophoric: Spontaneously flammable in air. Reacts violently with water. Air sensitive. Moisture sensitive.

Conditions to Avoid Incompatible products. Heat, flames and sparks. Exposure to moist air or water. Exposure to air. Exposure to moisture. Keep away from open flames, hot surfaces and sources of ignition.

Incompatible Materials Strong oxidizing agents, Halogens, Bases, Acids, Alcohols

Hazardous Decomposition Products Butane, Carbon monoxide (CO), Carbon dioxide (CO₂)

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing. Reacts violently with water.

11. Toxicological information

Information on expected route of exposure

Inhalation Not an expected route of exposure.
Ingestion May be harmful if swallowed. Harmful if swallowed. Potential for aspiration if swallowed.
Eyes Avoid contact with eyes. Corrosive to the eyes and may cause severe damage including blindness. Risk of serious damage to eyes.
Skin Avoid contact with skin. Causes burns. Skin Corrosion/Irritation. Contact with moist skin may cause skin burns.

Toxicology data for the components

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Hexane	LD50 = 25 g/kg (Rat)	LD50 = 3000 mg/kg (Rabbit)	LC50 = 48000 ppm (Rat) 4 h

Toxicologically Synergistic Products No information available

(b) skin corrosion/irritation; Category 1 B

(c) serious eye damage/irritation; Category 1

(d) respiratory or skin sensitization;
Respiratory No data available
Skin No data available

(e) germ cell mutagenicity; No data available

(f) carcinogenicity;

The table below indicates whether each agency has listed any ingredient as a carcinogen

Component	CAS No	IARC	NTP	ACGIH	OSHA	Mexico
Hexane	110-54-3	Not listed	Not listed	Not listed	Not listed	Not listed
Butyl lithium	109-72-8	Not listed	Not listed	Not listed	Not listed	Not listed

(g) reproductive toxicity; Category 2

**Reproductive Effects
Developmental Effects
Teratogenicity**

Experiments have shown reproductive toxicity effects on laboratory animals.
Developmental effects have occurred in experimental animals.
Teratogenic effects have occurred in experimental animals.

(h) STOT-single exposure; Category 3

Results / Target organs

Central nervous system (CNS).

(i) STOT-repeated exposure; Category 1

Target Organs

Eyes, Respiratory system, Skin, Gastrointestinal tract (GI), Central nervous system (CNS), Liver, Peripheral Nervous System (PNS).

(j) aspiration hazard; Category 1

Other Adverse Effects

Tumorigenic effects have been reported in experimental animals.

Symptoms / effects, both acute and delayed

Inhalation of high vapor concentrations may cause symptoms like headache, dizziness, tiredness, nausea and vomiting. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated. Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation.

Other Adverse Effects

Tumorigenic effects have been reported in experimental animals.

Endocrine Disrupting Properties

This product does not contain any known or suspected endocrine disruptors.

12. Ecological information

Ecotoxicity

Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment. Reacts with water so no ecotoxicity data for the substance is available.

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Hexane	Not listed	LC50: 2.1 - 2.98 mg/L, 96h flow-through (Pimephales promelas)	Not listed	EC50: 3.87 mg/L/48h

Persistence and Degradability Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility

Will likely be mobile in the environment due to its volatility. Is not likely mobile in the environment.

Component	log Pow
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Hexane	4.11
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13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT

UN-No UN3394
 Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
 Technical Shipping Name (N-BUTYLLITHIUM, HEXANE)
 Hazard Class 4.2
 Subsidiary Hazard Class 4.3
 Packing Group I

TDG

UN-No UN3394
 Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
 Technical Shipping Name (N-BUTYLLITHIUM, HEXANE)
 Hazard Class 4.2
 Subsidiary Hazard Class 4.3
 Packing Group I

IATA

UN-No UN3394
 Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE,
 FORBIDDEN FOR IATA TRANSPORT
 Technical Shipping Name (N-BUTYLLITHIUM, HEXANE)
 Hazard Class 4.2
 Subsidiary Hazard Class 4.3
 Packing Group I

IMDG/IMO

UN-No UN3394
 Proper Shipping Name ORGANOMETALLIC SUBSTANCE, LIQUID, PYROPHORIC, WATER-REACTIVE
 Technical Shipping Name (N-BUTYLLITHIUM, HEXANE)
 Hazard Class 4.2
 Subsidiary Hazard Class 4.3
 Packing Group I

15. Regulatory Information

United States of America Inventory

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	TSCA - EPA Regulatory Flags
Hexane	110-54-3	X	ACTIVE	-
Butyl lithium	109-72-8	X	ACTIVE	-

Legend:

TSCA US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - Not Listed

TSCA - Per 40 CFR 751, Regulation of Certain Chemical Substances & Mixtures, Under TSCA Section 6(h) (PBT)

Not applicable

TSCA 12(b) - Notices of Export

Not applicable

International Inventories

China, X = listed, Australia, U.S.A. (TSCA), Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC),

Japan (ENCS), Philippines (PICCS), Taiwan (TCSI), Japan (ISHL), New Zealand (NZIoC), Japan (ISHL).

Component	CAS No	DSL	NDSL	EINECS	PICCS	ENCS	ISHL	AICS	IECSC	KECL
Hexane	110-54-3	X	-	203-777-6	X	X	X	X	X	KE-18626
Butyl lithium	109-72-8	X	-	203-698-7	X	X	X	X	X	KE-04320

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

U.S. Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

Component	CAS No	Weight %	SARA 313 - Threshold Values %	SARA 313 - Reporting thresholds
Hexane	110-54-3	77	1.0 %	-

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act) Not applicable

Clean Air Act

Component	HAPS Data	Class 1 Ozone Depletors	Class 2 Ozone Depletors
Hexane	X		-

OSHA - Occupational Safety and Health Administration Not applicable

CERCLA

This material, as supplied, contains one or more substances regulated as a hazardous substance under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355).

Component	Hazardous Substances RQs	CERCLA Extremely Hazardous Substances RQs	SARA Reportable Quantity (RQ)
Hexane	5000 lb	-	5000 lb 2270 kg

California Proposition 65 This product contains the following Proposition 65 chemicals.

Component	CAS No	California Prop. 65	Prop 65 NSRL	Category
Hexane	110-54-3	Male Reproductive	-	Developmental

U.S. State Right-to-Know Regulations

Component	Massachusetts	New Jersey	Pennsylvania	Illinois	Rhode Island
Hexane	X	X	X	X	X
Butyl lithium	-	X	X	-	-

U.S. Department of Transportation

Reportable Quantity (RQ): Y
DOT Marine Pollutant Y
DOT Severe Marine Pollutant N

U.S. Department of Homeland Security This product does not contain any DHS chemicals.

Other International Regulations

Mexico - Grade

Serious risk, Grade 3

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Hexane	110-54-3	-	Use restricted. See entry 75. (see link for restriction details)	SVHC candidate list - EC 203-777-6 - Specific target organ toxicity after repeated exposure Article 57(f) - human health
Butyl lithium	109-72-8	-	-	-

REACH links<https://echa.europa.eu/substances-restricted-under-reach><https://echa.europa.eu/candidate-list-table>**Safety, health and environmental regulations/legislation specific for the substance or mixture**

Component	CAS No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Hexane	110-54-3	Listed	Not applicable	Not applicable	Not applicable
Butyl lithium	109-72-8	Listed	Not applicable	Not applicable	Not applicable

Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Other International Regulations

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Hexane	110-54-3	Not applicable	Not applicable	Not applicable	Annex I - Y42
Butyl lithium	109-72-8	Not applicable	Not applicable	Not applicable	Not applicable

16. Other Information**Prepared By**

Product stewardship (Regulatory Affairs)
Thermo Fisher Scientific
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Creation Date

06-Apr-2010

Revision Date

14-Mar-2026

Print Date

14-Mar-2026

Revision Summary

Updated to the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) which published its Final Rule in the Federal Register revising the Hazard Communication Standard (HCS/HazCom), 29 CFR 1910.1200 (2024) (HCS §1910.1200, 2024), May 20, 2024, effective July 19, 2024.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS