

according to Regulation UK SI 2019/758 and UK SI 2020/1577 as amended

Creation Date 02-Sep-2014 Revision Date 04-Oct-2023 Revision Number 11

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Description: <u>Lithium bis(trifluoromethanesulfonimide)</u>

Cat No. : 381030000; 381030100; 381030500

 Index No
 616-124-00-9

 CAS No
 90076-65-6

 EC No
 415-300-0

 Molecular Formula
 C2 F6 Li N O4 S2

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended Use Laboratory chemicals.
Uses advised against No Information available

1.3. Details of the supplier of the safety data sheet

Company

UK entity/business name

Fisher Scientific UK Bishop Meadow Road,

Loughborough, Leicestershire LE11 5RG, United Kingdom

EU entity/business name

Thermo Fisher Scientific

Janssen Pharmaceuticalaan 3a, 2440 Geel, Belgium

E-mail address begel.sdsdesk@thermofisher.com

1.4. 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

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

Physical hazards

Based on available data, the classification criteria are not met

Health hazards

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

Acute oral toxicity
Category 3 (H301)
Acute dermal toxicity
Skin Corrosion/Irritation
Serious Eye Damage/Eye Irritation
Specific target organ toxicity - (repeated exposure)

Category 1 (H318)
Category 1 (H318)
Category 2 (H373)

Category 2 (H373)

Category 3 (H412)

Full text of Hazard Statements: see section 16

2.2. Label elements



Signal Word

Danger

Hazard Statements

H314 - Causes severe skin burns and eye damage

H373 - May cause damage to organs through prolonged or repeated exposure

H412 - Harmful to aquatic life with long lasting effects

H301 + H311 - Toxic if swallowed or in contact with skin

Precautionary Statements

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P330 + P331 - IF SWALLOWED: Rinse mouth. Do NOT induce vomiting

P303 + P361 + P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or 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

P310 - Immediately call a POISON CENTER or doctor/physician

2.3. Other hazards

Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent and very bioaccumulative (vPvB)

This product does not contain any known or suspected endocrine disruptors

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Lithium bis(trifluoromethanesulfonimide)	90076-65-6	415-300-0	>95	Acute Tox. 3 (H301) Acute Tox. 3 (H311) Skin Corr. 1B (H314) STOT RE 2 (H373) Aquatic Chronic 3 (H412)

Full text of Hazard Statements: see section 16

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures

General Advice Show this safety data sheet to the doctor in attendance. Immediate medical attention is

required.

Eye Contact In the case of contact with eyes, rinse immediately with plenty of water and seek medical

advice. Rinse immediately with plenty of water, also under the eyelids, for at least 15

minutes.

Skin Contact Wash off immediately with plenty of water for at least 15 minutes. Immediate medical

attention is required.

Ingestion Do NOT induce vomiting. Call a physician or poison control center immediately.

Inhalation Remove to fresh air. If not breathing, give artificial respiration. 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.

Immediate medical attention is required.

Self-Protection of the First Aider Ensure that medical personnel are aware of the material(s) involved, take precautions to

protect themselves and prevent spread of contamination.

4.2. Most important symptoms and effects, both acute and delayed

Causes burns by all exposure routes. 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

4.3. Indication of any immediate medical attention and special treatment needed

Notes to Physician Treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

CO₂, dry chemical, dry sand, alcohol-resistant foam.

Extinguishing media which must not be used for safety reasons

No information available.

5.2. Special hazards arising from the substance or mixture

The product causes burns of eyes, skin and mucous membranes.

Hazardous Combustion Products

Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Sulfur oxides, Gaseous hydrogen fluoride (HF).

5.3. Advice for firefighters

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

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.

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment as required. Evacuate personnel to safe areas. Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid dust formation.

6.2. Environmental precautions

Should not be released into the environment. Do not flush into surface water or sanitary sewer system.

6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe 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 ingest. If swallowed then seek immediate medical assistance. Do not breathe (dust, vapor, mist, gas). Avoid dust formation.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Corrosives area.

Technical Rules for Hazardous Substances (TRGS) 510 Class 6.1C **Storage Class (LGK) (Germany)**

7.3. Specific end use(s)

Use in laboratories

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limits

List source(s):

Biological limit values

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

See table for values

Component	Acute effects local (Inhalation)	Acute effects systemic (Inhalation)	Chronic effects local (Inhalation)	Chronic effects systemic (Inhalation)
Lithium				$DNEL = 0.24 mg/m^3$
bis(trifluoromethanesulfonimide)				-
90076-65-6 (>95)				

Predicted No Effect Concentration (PNEC)

See values below.

Component	Fresh water			Microorganisms in	, ,
		sediment		sewage treatment	
Lithium	PNEC = $14\mu g/L$	$PNEC = 71\mu g/kg$	PNEC = 0.14mg/L	PNEC = 10mg/L	PNEC = 6µg/kg soil
bis(trifluoromethanesulfoni		sediment dw			dw
mide)					
90076-65-6 (>95)					

Component	Marine water	Marine water sediment	Marine water intermittent	Food chain	Air
Lithium bis(trifluoromethanesulfoni mide) 90076-65-6 (>95)	PNEC = 1.4µg/L	PNEC = 7.1µg/kg sediment dw			

8.2. Exposure controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

Skin and body protection Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

Remove gloves with care avoiding skin contamination.

When workers are facing concentrations above the exposure limit they must use **Respiratory Protection**

appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used

and maintained properly

Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits Large scale/emergency use

are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143

Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure Small scale/Laboratory use

limits are exceeded or if irritation or other symptoms are experienced.

Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

Prevent product from entering drains. **Environmental exposure controls**

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical State Powder Solid

Appearance White

Odor No information available **Odor Threshold** No data available

234 - 238 °C / 453.2 - 460.4 °F **Melting Point/Range**

Softening Point No data available No information available **Boiling Point/Range**

Flammability (liquid) Not applicable Solid

Flammability (solid,gas) Not flammable **Explosion Limits** No data available

No information available Flash Point Method - No information available

Autoignition Temperature Not applicable **Decomposition Temperature** No data available Not applicable рH Not applicable

Solid **Viscosity**

1730 g/l (20°C) Water Solubility

Solubility in other solvents No information available

Partition Coefficient (n-octanol/water)

Component log Pow Lithium -1.46

bis(trifluoromethanesulfonimide)

Vapor Pressure No data available

Density / Specific Gravity

Bulk Density No data available **Vapor Density** Not applicable

Particle characteristics No data available

9.2. Other information

Molecular Formula C2 F6 Li N O4 S2

Molecular Weight 287.09 Not explosive **Explosive Properties Oxidizing Properties** Not oxidising

Not applicable - Solid **Evaporation Rate**

ACR38103

Solid

Revision Date 04-Oct-2023

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None known, based on information available

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous Polymerization Hazardous polymerization does not occur.

Hazardous Reactions None under normal processing.

10.4. Conditions to avoid

Avoid dust formation. Incompatible products. Excess heat.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Nitrogen oxides (NOx). Carbon monoxide (CO). Carbon dioxide (CO₂). Sulfur oxides.

Gaseous hydrogen fluoride (HF).

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Product Information

(a) acute toxicity;

OralCategory 3DermalCategory 3

Inhalation Based on available data, the classification criteria are not met

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Lithium bis(trifluoromethanesulfonimide)	Species: Rat	Species: Rabbit	-
	Male: 160 mg/kg	Male: 371 mg/kg	
	Female: 210 mg/kg	Female: 418 mg/kg	

(b) skin corrosion/irritation; Category 1 B
Test method OECD 404
Test species rabbit
Observational endpoint Corrosive

(c) serious eye damage/irritation; Category 1
Test method OECD 405
Test species rabbit
Observation end point irreversible

(d) respiratory or skin sensitization;

Respiratory No data available Skin No data available

Component	Test method	Test species	Study result
Lithium bis(trifluoromethanesulfonimide)	OECD Test Guideline 406	guinea pig	non-sensitising

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

90076-65-6 (>95)

No information available

(e) germ cell mutagenicity; No data available

Component	Test method	Test species	Study result
Lithium bis(trifluoromethanesulfonimide)	AMES test	in vitro	negative
90076-65-6 (>95)			_

(f) carcinogenicity; No data available

There are no known carcinogenic chemicals in this product

(q) reproductive toxicity; No data available

Component	Test method	Test species / Duration	Study result
Lithium bis(trifluoromethanesulfonimide)	OECD Test Guideline 421	Rat	negative
90076-65-6 (>95)			_

No data available (h) STOT-single exposure;

Category 2 (i) STOT-repeated exposure;

Test method OECD Test No. 407 **Test species / Duration** Rat / 32 days

NOAEL = 10 mg/kg bw/day Study result

Route of exposure

Target Organs Central nervous system (CNS), Peripheral Nervous System (PNS).

(j) aspiration hazard; Not applicable

Solid

Symptoms / effects,both acute and Product is a corrosive material. Use of gastric lavage or emesis is contraindicated.

delayed

Possible perforation of stomach or esophagus should be investigated. Ingestion causes

severe swelling, severe damage to the delicate tissue and danger of perforation.

11.2. Information on other hazards

Endocrine Disrupting Properties Assess endocrine disrupting properties for human health. This product does not contain any

known or suspected endocrine disruptors.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecotoxicity effects Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic

environment. Do not empty into drains. The product contains following substances which

are hazardous for the environment.

Component	Freshwater Fish	Water Flea	Freshwater Algae
Lithium bis(trifluoromethanesulfonimide)	Pimephales promelas LC50: 202	Daphnia Magna EC50: 20 mg/l,	Desmodesmus Subcapitatus
	mg/l, 96 hr	48 hr	EC50: 178 mg/l, 72 hr

Component	Microtox	M-Factor
Lithium bis(trifluoromethanesulfonimide)	EC50: > 1000 mg/l, 3 hr	

Lithium bis(trifluoromethanesulfonimide)

12.2. Persistence and degradability

Persistence Persistence is unlikely.

Component	Degradability
Lithium bis(trifluoromethanesulfonimide)	9% biodegradation after 28 days - not biodegradable
90076-65-6 (>95)	

Degradation in sewage treatment plant

Contains substances known to be hazardous to the environment or not degradable in waste

Revision Date 04-Oct-2023

water treatment plants.

Bioaccumulation is unlikely 12.3. Bioaccumulative potential

Component	log Pow	Bioconcentration factor (BCF)
Lithium bis(trifluoromethanesulfonimide)	-1.46	< 4 : high exposure
		< 41 : low exposure

The product is water soluble, and may spread in water systems Will likely be mobile in the 12.4. Mobility in soil

environment due to its water solubility. Highly mobile in soils

12.5. Results of PBT and vPvB Substance is not considered persistent, bioaccumulative and toxic (PBT) / very persistent

assessment and very bioaccumulative (vPvB).

12.6. Endocrine disrupting

properties

Endocrine Disruptor Information This product does not contain any known or suspected endocrine disruptors

12.7. Other adverse effects

Persistent Organic Pollutant This product does not contain any known or suspected substance **Ozone Depletion Potential** This product does not contain any known or suspected substance

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues/Unused Waste is classified as hazardous. Dispose of in accordance with the European Directives **Products**

on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging Dispose of this container to hazardous or special waste collection point.

European Waste Catalogue (EWC) According to the European Waste Catalog, Waste Codes are not product specific, but

application specific.

Other Information Do not flush to sewer. Waste codes should be assigned by the user based on the

application for which the product was used. Do not empty into drains. Large amounts will affect pH and harm aquatic organisms. Do not let this chemical enter the environment.

SECTION 14: TRANSPORT INFORMATION

IMDG/IMO

UN2923 14.1. UN number

14.2. UN proper shipping name Corrosive solid, toxic, n.o.s.

Technical Shipping Name Lithium bis(trifluoromethylsulfonyl)imide

14.3. Transport hazard class(es)

Lithium bis(trifluoromethanesulfonimide)

Revision Date 04-Oct-2023

Subsidiary Hazard Class 14.4. Packing group II

ADR

UN2923 14.1. UN number

14.2. UN proper shipping name Corrosive solid, toxic, n.o.s.

Technical Shipping Name Lithium bis(trifluoromethylsulfonyl)imide

14.3. Transport hazard class(es) **Subsidiary Hazard Class** 6.1 14.4. Packing group II

IATA

14.1. UN number UN2923

14.2. UN proper shipping name Corrosive solid, toxic, n.o.s.

Lithium bis(trifluoromethylsulfonyl)imide **Technical Shipping Name**

14.3. Transport hazard class(es) **Subsidiary Hazard Class** 6.1 14.4. Packing group П

No hazards identified 14.5. Environmental hazards

14.6. Special precautions for user No special precautions required.

14.7. Maritime transport in bulk according to IMO instruments

Not applicable, packaged goods

SECTION 15: REGULATORY INFORMATION

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

International Inventories

China, X = listed, U.S.A. (TSCA), Canada (DSL/NDSL), Europe (EINECS/ELINCS/NLP), Australia (AICS), Korea (KECL), China (IECSC), Japan (ENCS), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Lithium	90076-65-6	-	415-300-0	-	Х	X	KE-05-131	X	-
bis(trifluoromethanesulfonimide)							6		

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Lithium bis(trifluoromethanesulfonimide)	90076-65-6	X	ACTIVE	X	-	-	-	-

Legend: X - Listed '-' - Not Listed KECL - NIER number or KE number (http://ncis.nier.go.kr/en/main.do)

Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization		REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Lithium bis(trifluoromethanesulfonimide)	90076-65-6	-	Use restricted. See item 75. (see link for restriction details)	•

Lithium bis(trifluoromethanesulfonimide)

REACH links

https://echa.europa.eu/substances-restricted-under-reach

Seveso III Directive (2012/18/EC)

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
Lithium bis(trifluoromethanesulfonimi de)	90076-65-6	Not applicable	Not applicable

Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

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

See table for values

Component	OECD PFAS	US (EPA) PFAS	EU (ECHA) PFAS	UK (HSE) PFAS	Chemsec PFAS (Sin
					List)
Lithium bis(trifluoromethanesulfonimide) (CAS #: 90076-65-6)	-	<u>-</u>	Listed	Listed	Listed

PFAS Legend

Listed = Meets the PFAS definition of the named authority

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

National Regulations

UK - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

WGK Classification

Water endangering class = 3 (self classification)

15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

SECTION 16: OTHER INFORMATION

Full text of H-Statements referred to under sections 2 and 3

H301 - Toxic if swallowed

H311 - Toxic in contact with skin

H314 - Causes severe skin burns and eye damage

H318 - Causes serious eye damage

H373 - May cause damage to organs through prolonged or repeated exposure

H412 - Harmful to aquatic life with long lasting effects

Revision Date 04-Oct-2023

Legend

CAS - Chemical Abstracts Service

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances **KECL** - Korean Existing and Evaluated Chemical Substances Substances List

ENCS - Japanese Existing and New Chemical Substances AICS - Australian Inventory of Chemical Substances NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment LC50 - Lethal Concentration 50% NOEC - No Observed Effect Concentration PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

Predicted No Effect Concentration (PNEC)

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50% POW - Partition coefficient Octanol:Water vPvB - very Persistent, very Bioaccumulative

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

MARPOL - International Convention for the Prevention of Pollution from

Ships

ATE - Acute Toxicity Estimate VOC - (Volatile Organic Compound)

Key literature references and sources for data

https://echa.europa.eu/information-on-chemicals

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Creation Date 02-Sep-2014 **Revision Date** 04-Oct-2023 **Revision Summary** Not applicable.

This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.

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 Safety Data Sheet