Safety Data Sheet

1. Product and Company Identification

Product Name: Lithium bis(trifluoromethanesulfonyl)imide
CAS#: 90076-65-6
Chemical Formula: C2F6LiNO4S2
Identified uses: Laboratory chemicals, Manufacture of substances, Scientific research and development
Synonyms: Bis(trifluoromethane)sulfonimide lithium salt
LiTFSI
Other means of identification: MFCD00210017

Contact Information:
MTI Corporation
860 South 19th Street
Richmond, CA 94804, USA
Tel: 510-525-3070
Fax: 510-525-4705
Email: info@mtixtl.com
Website: www.mtixtl.com

Non-emergency assistance: 1-888-525-3070
Emergency assistance: CHEMTEL (MTI Contract# MIS2559467) Day or Night
Tel (Within USA and Canada): 1-800-255-3924
Tel (Outside USA and Canada): 1-813-248-0585

2. Hazards Identification

Emergency Overview: GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute Tox. 3 (Oral)	H301 -	Toxic if swallowed
Acute Tox. 3 (Dermal)	H311 -	Toxic in contact with skin
Skin Corr. 1B	H314 -	Causes severe skin burns and eye damage
Eye Dam. 1	H318 -	Causes serious eye damage
STOT SE 3	H335 -	May cause respiratory irritation
STOT RE 2	H373 -	May cause damage to organs through prolonged or repeated exposure
Aquatic Acute 3	H402 -	Harmful to aquatic life
Aquatic Chronic 3	H412 -	Harmful to aquatic life with long lasting effects

For the full text of the H-Statements mentioned in this Section, see Section 16.

HMIS Rating
Health hazard: 3
Chronic Health Hazard: *
Flammability: 0
Physical Hazard 0

NFPA Rating
Health hazard:3
Fire Hazard: 0
Reactivity Hazard: 0

GHS Label elements, including precautionary statements

Pictogram	
Signal	Danger
Hazard statement(s)	
H301+H311	Toxic if swallowed or in contact with skin.
H314	Causes severe skin burns and eye damage.
H335	Causes serious respiratory irritation.
H373	May cause damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.
Precautionary statement(s)	
P260	Obtain special instructions before use.
P264	Wash skin thoroughly after handling.
P270	Do not handle until all safety precautions have been read and understood.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301+P310	If swallowed: Immediately call a poison center/doctor/…
P301+P330+P331	If swallowed: rinse mouth. Do NOT induce vomiting
P302+P352	If on skin: Wash with plenty of soap and water
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P304+P340	If inhaled: Remove person to fresh air and keep comfortable for breathing
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.
P314	Get medical advice/attention if you feel unwell.
P321	Specific treatment (see supplemental first aid instructions on this label).
P330	Rinse mouth.
P361	Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P403+P233	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS

No additional information available

Unknown acute toxicity (GHS US)

Not applicable

3. Composition/Information on Ingredients

Substance Name: Lithium bis(trifluoromethanesulfonyl)imide
Substance Type: Mono-constituent
Molecular Mass: 287.09 g/mol

Hazardous Components

Lithium bis(trifluoromethanesulfonyl)imide CAS-No. 90076-65-6	<=100%	Acute Tox. 3 (Oral), H301 Acute Tox. 3 (Dermal), H311

		Skin Corr. 1B, H314 Eye Dam. 1, H318 STOT SE 3, H335 STOT RE 2, H373 Aquatic Acute 3, H402 Aquatic Chronic 3, H412

4. First Aid Measures

4.1 Description of first aid measures

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash with plenty of soap and water. Remove contaminated clothing and shoes. Get immediate medical advice/attention.

In case of eye contact

Immediately flush eyes thoroughly with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Get immediate medical advice/attention.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Material is destructive to tissue of the mucuous membranes and upper respiratory tract. Cough, shortness of breath, headache, nausea.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

5. Firefighting Measures

5.1 Extinguishing media

Suitable extinguishing media

Alcohol resistant foam. Carbon dioxide. Dry powder. Water spray. Use extinguishing media appropriate for surrounding fire.

5.2 Special hazards arising from the substance mixture

Thermal decomposition generates: Carbon oxides. Hydrogen fluoride. Lithium oxide. Nitrogen oxides. Sulfur oxides.

5.3 Advice for firefighters

Firefighting instructions	In case of fire: Evacuate area.
Protection during firefighting	Wear gas tight chemically protective clothing in combination with self-contained breathing apparatus. For further information, refer to section 8: "Exposure controls/personal protection"

Further Information

Use water spray to cool unopened containers.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

General measures Evacuate unnecessary personnel. Ensure adequate air ventilation. Do not breathe dust.

6.1.1. For non-emergency personnel

Emergency procedures Only qualified personnel equipped with suitable protective equipment may intervene.

6.1.2. For emergency responders

Protective equipment **Do not attempt to take action without suitable protective equipment. For further information, refer to section 8: "Exposure controls/personal protection".**

Environmental precautions

6.2 Environmental Precautions

Avoid release to the environment. Notify authorities if product enters sewers or public waters

6.3 Reference to other sections

For containment Stop leak if safe to do so.

Methods for cleaning up Sweep or shovel spills into appropriate container for disposal. Minimize generation of dust.

Other information For disposal of solid materials or residues refer to section 13 : "Disposal considerations".

7. Handling and Storage

7.1 Precautions for safe handling

Do not handle until all safety precautions have been read and understood. Ensure good ventilation of the work station. Do not breathe dust, mist, spray. Wear personal protective equipment. Avoid contact with skin and eyes.

Hygiene measures Handle in accordance with good industrial hygiene and safety procedures.Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2 Conditions for safe storage, including any incompatibilities

Technical measures Comply with applicable regulations.

Storage conditions Keep container closed when not in use. Hygroscopic. Moisture sensitive. Keep contents under inert gas.

Incompatible materials Refer to Section 10 on Incompatible Materials.

Storage area Store in dry, cool, well-ventilated area.

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulate

8. Exposure Control/ Personal Protection

8.1 Control parameters

No additional information available

8.2 Exposure controls

Appropriate engineering controls

Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Personal protective equipment

Eye/face protection

Chemical goggles or safety glasses. Face shield. 29 CFR 1910.133: Eye and Face Protection.
Ensure good ventilation of the work station. Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure.

Skin protection

Protective gloves. 29 CFR 1910.138: Hand Protection.
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection

Complete suit protecting against chemicals, Flame retardant antistatic protective clothing. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. 29 CFR 1910.134: Respiratory Protection.
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multipurpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.
If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure

Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Other information

Safety shoes. 29 CFR 1910.136: Foot Protection.

9. Physical and Chemical Properties

9.1 Information on basic physical and chemical properties

a) Appearance	Solid
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	No data available
e) Melting point/freezing point	Melting point/range: -234 - 238 °C
f) Initial boiling point and	No data available
boiling range	No data available
g) Flash point	No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	No data available

j) Upper/lower flammability or explosive limits	No data available No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Relative density	No data available
n) Water solubility	No data available
o) Partition coefficient: n-octanol/water	No data available
p) Auto-ignition temperature	No data available
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	No data available
t) Oxidizing properties	No data available

9.2 Other safety information

No additional information available.

10. Stability and Reactivity

10.1 Reactivity

No data available

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

No data available

10.4 Conditions to avoid

Keep away from heat, sparks and flame.

10.5 Incompatible materials

Strong oxidizing agents

10.6 Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Hazardous decomposition products in case of fire, see Section 5.

11. Toxicological Information

11.1 Information on toxicological effects

Acute toxicity

Oral: Toxic if swallowed. Dermal: Toxic in contact with skin.

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage.

Respiratory or skin sensitization

Not classified

Germ cell mutagenicity

Not classified

Carcinogenicity

Not classified

Reproductive toxicity

Damage to fetus possible

No data available

Specific target organ toxicity - single exposure

Inhalation - May cause respiratory irritation.

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

No data available

Symptoms/ Injuries after inhalation

Material is destructive to tissue of the mucuous membranes and upper respiratory tract. Cough, shortness of breath, headache, nausea.

12. Ecological Information

12.1 Toxicity

No additional information available

12.2 Persistence and degradability

No additional information available

12.3 Bioaccumulative potential

No additional information available

12.4 Mobility in soil

No additional information available

12.5 Other adverse effects

No additional information available

13. Disposal Considerations

13.1 Waste treatment methods

Remove to an authorized incinerator equipped with an afterburner and a flue gas scrubber.
Dispose of contents/container in accordance with licensed collector's sorting instructions.
Recycle the material as far as possible.

14. Transport Information

In accordance with DOT

Transport document description	UN2923 Corrosive solids, toxic, n.o.s., 8, II
UN-No.(DOT)	UN2923
Proper Shipping Name (DOT)	Corrosive solids, toxic, n.o.s.
Transport hazard class(es) (DOT)	8 - Class 8 - Corrosive material 49 CFR 173.136
Hazard labels (DOT)	8 - Corrosive 6.1 - Poison

Packing group (DOT)	II - Medium Danger
DOT Packaging Non Bulk (49 CFR 173.xxx)	212
DOT Packaging Bulk (49 CFR 173.xxx)	240
DOT Symbols	G - Identifies PSN requiring a technical name

DOT Special Provisions (49 CFR 172.102)

IB8 - Authorized IBCs: Metal (11A, 11B, 11N, 21A, 21B, 21N, 31A, 31B and 31N); Rigid plastics (11H1, 11H2, 21H1, 21H2, 31H1 and 31H2); Composite (11HZ1, 11HZ2, 21HZ1,

21HZ2, 31HZ1 and 31HZ2); Fiberboard (11G); Wooden (11C, 11D and 11F); Flexible (13H1, 13H2, 13H3, 13H4, 13H5, 13L1, 13L2, 13L3, 13L4, 13M1 or 13M2).
IP2 - When IBCs other than metal or rigid plastics IBCs are used, they must be offered for transportation in a closed freight container or a closed transport vehicle.
IP4 - Flexible, fiberboard or wooden IBCs must be sift-proof and water-resistant or be fitted with a sift-proof and water-resistant liner.
T3 - 2.65 178.274(d)(2) Normal..... 178.275(d)(2)
TP33 - The portable tank instruction assigned for this substance applies for granular and powdered solids and for solids which are filled and discharged at temperatures above their melting point which are cooled and transported as a solid mass. Solid substances transported or offered for transport above their melting point are authorized for transportation in portable tanks conforming to the provisions of portable tank instruction T4 for solid substances of packing group III or T7 for solid substances of packing group II, unless a tank with more stringent requirements for minimum shell thickness, maximum allowable working pressure, pressure-relief devices or bottom outlets are assigned in which case the more stringent tank instruction and special provisions shall apply. Filling limits must be in accordance with portable tank special provision TP3. Solids meeting the definition of an elevated temperature material must be transported in accordance with the applicable requirements of this subchapter.

DOT Packaging Exceptions (49 CFR 173.xxx)	154
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	15 kg
DOT Quantity Limitations Cargo aircraft only	(49 : 50 kg CFR 175.75)

DOT Vessel Stowage Location
B - (i) The material may be stowed ‘‘on deck’’ or ‘‘under deck’’ on a cargo vessel and on a passenger vessel carrying a number of passengers limited to not more than the larger of 25 passengers, or one passenger per each 3 m of overall vessel length; and (ii) ‘‘On deck only’’ on passenger vessels in which the number of passengers specified in paragraph (k)(2)(i) of this section is exceeded.

DOT Vessel Stowage Other	40 - Stow ‘‘clear of living quarters’’

TDG
No additional information available

Transport by sea

UN-No. (IMDG)	2923
Proper Shipping Name (IMDG)	CORROSIVE SOLID, TOXIC, N.O.S.
Class (IMDG)	8 - Corrosive substances
Packing group (IMDG)	II - substances presenting medium danger

Air transport

UN-No. (IATA)	2923
Proper Shipping Name (IATA)	Corrosive solid, toxic, n.o.s.
Class (IATA)	8 - Corrosives
Packing group (IATA)	II - Medium Danger

15. Regulatory information

US Federal regulations:
Lithium bis(trifluoromethanesulfonyl)imide (90076-65-6)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

International regulations

CANADA
Lithium bis(trifluoromethanesulfonyl)imide (90076-65-6)
Listed on the Canadian DSL (Domestic Sustances List)

EU-Regulations
Lithium bis(trifluoromethanesulfonyl)imide (90076-65-6)
Listed on ELINCS (European List of Notified Chemical Substances)

National regulations
Lithium bis(trifluoromethanesulfonyl)imide (90076-65-6)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory Listed on the Korean ECL (Existing Chemicals List)

US State regulations
California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer and/or reproductive harm

16. Other Information

Full text of H-phrases:

Acute Tox. 3 (Dermal)	Acute toxicity (dermal) Category 3
Acute Tox. 3 (Oral)	Acute toxicity (oral) Category 3
Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Aquatic Chronic 3	Hazardous to the aquatic environment - Chronic Hazard Category 3
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Corr. 1B	Skin corrosion/irritation Category 1B
STOT RE 2	Specific target organ toxicity (repeated exposure) Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H301	Toxic if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H318	Causes serious eye damage
H335	May cause respiratory irritation
H373	May cause damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life
H412	Harmful to aquatic life with long lasting effects

The information above is believed to be accurate and represents the best information currently available to us. However, it does not represent any guarantee of the properties of the product. We make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we shall not be held liable for any damage resulting from handling or from contact with the above product. Users should make their own investigations to determine the suitability of the information for their particular purposes.