



# MATERIAL SAFETY DATA SHEET

**MATERION**

## 1. Chemical product and company identification

<b>A. Product name</b>	Lithium Fluoride	
<b>Other means of identification</b>		
SDS number	1MD	
Materion Code	1MD	
CAS number	7789-24-4	
Synonym(s)	Lithium fluoride * LITHIUM MONOFLUORIDE	
<b>B. Recommended use and Limitations on use</b>		
Recommended use	Not available.	
<b>C. Supplier information</b>		
Company name	Materion Advanced Chemicals Inc.	
Address	407 N 13th Street 1316 W. St. Paul Avenue Milwaukee WI 53233 United States	
Division	Milwaukee	
Email	advancedmaterials@materion.com	
Contact person	Laura Hamilton	
Emergency telephone number	Chemtrec	800.424.9300
MSDS number	1MD	

## 2. Hazards identification

### A. Hazard category/Classification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure	Category 2
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

### B. Warning label items including precautionary statement

#### • Pictogram



#### • Signal word

Danger

#### • Hazard statement

H301	Toxic if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.

#### • Precautionary statement

##### Prevention

P264	Wash thoroughly after handling.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P270	Do not eat, drink or smoke when using this product.

## Response

	If you feel unwell, seek medical advice (show the label where possible).
P301 + P310	If swallowed: Immediately call a poison center/doctor.
P330	Rinse mouth.
P302 + P350	If on skin: Wash with plenty of water.
P305 + P351 + P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

## Storage

P405	Store locked up.
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## Disposal

P501	Dispose of contents/container in accordance with local/regional/national/international regulations.
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**C. Other hazards not included in the hazard category criteria (e.g. dust explosion hazard)** None known.

**Supplemental information** None.

## 3. Composition/information on ingredients

Chemical identity	Common and alternative names	CAS number	ID number	Content in percent (%)
Lithium fluoride		7789-24-4	KE-22559, 2010-1-604	100
Lithium fluoride * LITHIUM MONOFLUORIDE				

## 4. First aid measures

<b>A. In case of eye contact</b>	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.
<b>B. In case of skin contact</b>	Remove and isolate contaminated clothing and shoes. Immediately flush skin with plenty of water. Get medical attention immediately. Wash contaminated clothing before reuse. Wash clothing separately before reuse.
<b>C. In case of inhalation</b>	Move to fresh air. Do not use mouth-to-mouth method if victim inhaled the substance. Call a physician or poison control center immediately.
<b>D. In case of swallowing</b>	Call a physician or poison control center immediately. Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Do not use mouth-to-mouth method if victim ingested the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device.
<b>E. Note to physician</b>	Provide general supportive measures and treat symptomatically. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
<b>Most important symptoms/effects, acute and delayed</b>	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Dusts may irritate the respiratory tract, skin and eyes. Skin irritation. May cause redness and pain. Prolonged exposure may cause chronic effects.
<b>General advice</b>	In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

## 5. Fire-fighting measures

<b>A. Suitable (and unsuitable) extinguishing media</b>	
<b>Suitable extinguishing media</b>	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO <sub>2</sub> ).
<b>Unsuitable extinguishing media</b>	None known.
<b>B. Specific hazards arising from the chemical (example: hazardous combustion products)</b>	During fire, gases hazardous to health may be formed.

### C. Specific methods of fire-fighting

**Special protective equipment for firefighters** Wear suitable protective equipment.

**Special fire fighting procedures** Use water spray to cool unopened containers. Water runoff can cause environmental damage.

**General fire hazards** No unusual fire or explosion hazards noted.

**Specific methods** Use standard firefighting procedures and consider the hazards of other involved materials.

## 6. Accidental release measures

**A. Personal precautions, protective equipment and emergency measures** Immediately evacuate personnel to safe areas. Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe dust. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the MSDS.

**B. Environmental precautions** Avoid release to the environment. Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. Inform appropriate managerial or supervisory personnel of all environmental releases.

**C. Methods and materials for containment and cleaning up** Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Stop the flow of material, if this is without risk. Absorb in vermiculite, dry sand or earth and place into containers. Collect dust using a vacuum cleaner equipped with HEPA filter.

Large Spills: Wet down with water and dike for later disposal. Shovel the material into waste container. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the MSDS.

## 7. Handling and storage

**A. Precautions for safe handling** Minimize dust generation and accumulation. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Do not taste or swallow. When using, do not eat, drink or smoke. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Do not empty into drains. Observe good industrial hygiene practices.

**B. Conditions for safe storage (including any incompatibilities)** Store locked up. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the MSDS).

## 8. Exposure controls/personal protection

### A. Exposure limit values, biological limit values, etc

#### US. ACGIH Threshold Limit Values

Material	Type	Value
Lithium fluoride (CAS 7789-24-4)	TWA	2.5 mg/m <sup>3</sup>

### Biological limit values

#### ACGIH Biological Exposure Indices

Material	Value	Determinant	Specimen	Sampling Time
Lithium fluoride (CAS 7789-24-4)	3 mg/l	Fluoride	Urine	*
	2 mg/l	Fluoride	Urine	*

\* - For sampling details, please see the source document.

**B. Appropriate engineering controls**

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. If engineering measures are not sufficient to maintain concentrations of dust particulates below the Occupational Exposure Limit (OEL), suitable respiratory protection must be worn. If material is ground, cut, or used in any operation which may generate dusts, use appropriate local exhaust ventilation to keep exposures below the recommended exposure limits. Eye wash facilities and emergency shower must be available when handling this product.

**C. Personal protective equipment**

- **Respiratory protection** Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.
- **Eye protection** Wear eye/face protection. Chemical respirator with organic vapor cartridge, full facepiece, dust and mist filter.
- **Hand protection** Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
- **Body protection** Wear chemical protective equipment that is specifically recommended by the manufacturer. Use of an impervious apron is recommended. It may provide little or no thermal protection.

**Hygiene measures**

When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking.

**9. Physical and chemical properties**

- A. Appearance**
  - Physical state Powder.
  - Form Solid.
  - Color Powder.
  - Color Not available.
- B. Odor** Not available.
- C. Odor threshold** Not available.
- D. pH** Not available.
- E. Melting point/freezing point**
  - Melting point 1558.76 °F (848.2 °C)
  - Freezing point 1558.76 °F (848.2 °C)
- F. Boiling point, initial boiling point, and boiling range** 3043.4 °F (1673 °C)
- G. Flash point** Not available.
- H. Evaporation rate** Not available.
- I. Flammability (solid, gas)** Not available.
- J. Upper/lower limit on flammability or explosive limits**
  - Flammability limit - lower (%) Not available.
  - Flammability limit - upper (%) Not available.
  - Explosive limit - lower (%) Not available.
  - Explosive limit - upper (%) Not available.
- K. Vapor pressure** < 0.0000001 kPa at 25 °C
- L. Solubility**
  - Solubility (water) Not available.
- M. Vapor density** Not available.
- N. Specific gravity** 2.64 at 20 °C
- O. n-octanol/water partition coefficient** Not available.
- P. Auto-ignition temperature** Not available.

<b>Q. Decomposition temperature</b>	Not available.
<b>R. Viscosity</b>	Not available.
<b>S. Molecular weight</b>	25.94 g/mol
<b>Other data</b>	
<b>Density</b>	2.64 g/cm <sup>3</sup> estimated at 20 °C
<b>Explosive properties</b>	Not explosive.
<b>Molecular formula</b>	F-Li
<b>Oxidizing properties</b>	Not oxidizing.

## 10. Stability and reactivity

**Reactivity** The product is stable and non-reactive under normal conditions of use, storage and transport.

### A. Stability and hazardous reaction potential

<b>Stability</b>	Material is stable under normal conditions.
<b>Hazardous reaction potential</b>	No dangerous reaction known under conditions of normal use.

**B. Conditions to avoid (e.g. static discharge, shock or vibration, etc)** Contact with incompatible materials.

**C. Incompatible materials** None known.

**D. Hazardous decomposition products** No hazardous decomposition products are known.

## 11. Toxicological information

### A. Information on likely routes of exposure

- **Respiratory organs** May cause damage to organs through prolonged or repeated exposure by inhalation. Dust may irritate respiratory system.
- **Skin** Causes skin irritation.
- **Eyes** Causes serious eye irritation.
- **Mouth** Toxic if swallowed. Toxic if swallowed.

### B. Information on health hazards

- **Acute toxicity (list all possible routes of exposure)** Toxic if swallowed. Toxic if swallowed. May cause respiratory irritation.
- **Corrosivity or irritation to the skin** Causes skin irritation.
- **Serious eye damage/eye irritation** Causes serious eye irritation.
- **Respiratory sensitization** Due to lack of data the classification is not possible.
- **Skin sensitization** Due to lack of data the classification is not possible.
- **Carcinogenic properties /Carcinogenicity** This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Lithium fluoride (CAS 7789-24-4) 3 Not classifiable as to carcinogenicity to humans.

- **Mutagenic properties /Mutagenicity** Due to lack of data the classification is not possible.
- **Reproductive toxicity** Due to lack of data the classification is not possible.
- **Specific target organ toxicity - single exposure** Respiratory tract irritation.
- **Specific target organ toxicity - repeated exposure** May cause damage to organs through prolonged or repeated exposure.
- **Aspiration hazard** Due to lack of data the classification is not possible.

## 12. Ecological information

**A. Ecotoxicity** Toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

**Hazardous to the aquatic environment, acute hazard**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

**Hazardous to the aquatic environment, long-term hazard**

Toxic to aquatic life with long lasting effects.

**B. Persistence/degradability**

No data is available on the degradability of this product.

**C. Bioaccumulative potential**

No data available.

**D. Mobility in soil**

No data available.

**E. Other adverse effects**

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

### 13. Disposal considerations

**A. Method of disposal**

Do not allow this material to drain into sewers/water supplies. Dispose of contents/container in accordance with local/regional/national/international regulations.

**B. Disposal considerations (including disposal of contaminated containers or packaging)**

Not available.

### 14. Transport information

#### IATA

**A. UN number**

UN3288

**B. UN proper shipping name**

Toxic solid, inorganic, n.o.s.

**C. Transport hazard class(es)**

**Class**

6.1(PGIII)

**Subsidiary risk**

-

**D. Packing group**

III

**E. Environmental hazards**

No.

**ERG Code**

6L

**F. Special precautions for user**

Read safety instructions, MSDS and emergency procedures before handling.

**Other information**

**Passenger and cargo aircraft**

Allowed with restrictions.

**Cargo aircraft only**

Allowed with restrictions.

#### IMDG

**A. UN number**

UN3288

**B. UN proper shipping name**

TOXIC SOLID, INORGANIC, N.O.S.

**C. Transport hazard class(es)**

**Class**

6.1(PGIII)

**Subsidiary risk**

-

**D. Packing group**

III

**E. Environmental hazards**

**Marine pollutant**

No.

**EmS**

F-A, S-A

**F. Special precautions for user**

Read safety instructions, MSDS and emergency procedures before handling.

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not applicable.



## 15. Regulatory information

### A. Restrictions under the Industrial Safety and Health Law

#### Harmful Substances Prohibited from Manufacturing

Not regulated.

#### Harmful Substances Requiring Permission for Manufacture or Use

Not regulated.

#### Controlled Hazardous Substances

Not regulated.

#### Harmful Substances Requiring Special Medical Examination

Not regulated.

#### Workplace Environmental Monitoring Harmful Materials

Not regulated.

#### Occupational Exposure Limit

Not regulated.

### B. Restrictions under the Chemicals Control Law (Previously Toxic Chemicals Control Law)

#### Accidental Release Prevention Substances

Not regulated.

#### Act on the Registration and Evaluation of Chemicals

##### Banned Toxic Chemicals

Not regulated.

##### Designated Existing Chemicals Subject to Registration (PEC) (MoE No. 2015-92)

Lithium fluoride (CAS 7789-24-4)

##### Restricted Chemical Substances

Not regulated.

##### Toxic Chemicals

Lithium fluoride (CAS 7789-24-4)

2010-1-604

### C. Restrictions under the Dangerous Substance Safety Management Act

### D. Restrictions under the Wastes Control Act

#### Halogenated Materials in Waste Organic Solvents

Not regulated.

#### Hazardous Substances

Not regulated.

### E. Restrictions under other foreign or domestic laws

#### Clean Air Conservation Act

##### Air Pollutants

Lithium fluoride (CAS 7789-24-4)

Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (Rules on PIC, MoE No. 2014-252, Dec. 31, 2014; Standards for Pesticides, RDA No. 2014-26), as amended

Not listed.

##### Specific Air Pollutants

Lithium fluoride (CAS 7789-24-4)

#### Further information

This material safety data sheet was prepared in accordance with Article 41 of the Industrial Safety and Health Law.

## Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Korea	Existing Chemicals List (ECL)	Yes

\*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

## 16. Other information

### A. Source of information

ACGIH  
EPA: AQUIRE database  
NLM: Hazardous Substances Data Base  
US. IARC Monographs on Occupational Exposures to Chemical Agents

### B. Issue date

07-22-2019

### C. Number of revisions and date of most recent revision

Not applicable.

### D. Other

Not available.

### Disclaimer

Materion Advanced Chemicals Inc. cannot anticipate all conditions under which this information and its product, or the products of other manufacturers in combination with its product, may be used. It is the user's responsibility to ensure safe conditions for handling, storage and disposal of the product, and to assume liability for loss, injury, damage or expense due to improper use. This document has been prepared using data from sources considered to be technically reliable and the information is believed to be correct. Materion makes no warranties, expressed or implied, as to the accuracy of the information contained herein. Materion cannot anticipate all conditions under which this information and its products may be used and the actual conditions of use are beyond its control. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

### Revision information

Product and Company Identification: Synonyms  
Transport Information: Proper Shipping Name/Packing Group