



## MATERION

### 1. Chemical and company identification

|   |   |              |
|---|---|--------------|
| Name of chemical (Product name)                   | Lead Fluoride (PbF <sub>2</sub> )   |              |
| Supplier's company name, address and phone number |   |              |
| Company name                                      | Materion Advanced Chemicals Inc.  |              |
| Address   | 407 N 13th Street<br>1316 W. St. Paul Avenue<br>Milwaukee, WI 53233 United States |              |
| Division  | Milwaukee   |              |
| Contact person                                    | Laura Hamilton  |              |
| Telephone   | 414.212.0290  |              |
| e-mail address                                    | advancedmaterials@materion.com  |              |
| Emergency telephone number                        | Chemtrec  | 800.424.9300 |
| Materion Code                                     | 1LU   |              |
| Reference number                                  | 1LU   |              |

### 2. Hazards identification

#### GHS classification

|                       |   |  |
|-----------------------|---|--|
| Physical hazards      | The product is not classified according to GHS.   |  |
| Health hazards        | Serious eye damage/eye irritation                 | Category 2A  |
|                       | Carcinogenicity                                   | Category 1B  |
|                       | Reproductive toxicity                             | Category 1A  |
|                       | Specific target organ toxicity, single exposure   | Category 1 (blood, central nervous system, kidney)       |
|                       | Specific target organ toxicity, single exposure   | Category 3 respiratory tract irritation                  |
|                       | Specific target organ toxicity, repeated exposure | Category 1 (blood, bone, central nervous system, kidney) |
| Environmental hazards | The product is not classified according to GHS.   |  |

#### GHS label elements

##### Pictograms



##### Signal words

Danger

##### Hazard statement

Causes serious eye irritation. May cause respiratory irritation. May cause cancer. May damage fertility or the unborn child. Causes damage to organs (blood, central nervous system, kidney). Causes damage to organs (blood, bone, central nervous system, kidney) through prolonged or repeated exposure.

#### Precautionary statement

##### 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 thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

##### Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. IF exposed or concerned: Call a POISON CENTER/doctor. If eye irritation persists: Get medical advice/attention.

##### Storage

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

##### Disposal

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

**Other hazards which do not result in classification** None known.

**Supplemental information** For further information, please contact the Product Stewardship Department at +1.800.862.4118.

### Main symptoms and emergency overview

**Main symptoms** Narcosis. Behavioral changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Edema. Prolonged exposure may cause chronic effects.

**Emergency overview** Causes damage to organs. May cause cancer. Causes serious eye irritation. May cause irritation to the respiratory system. May cause reproductive effects. Prolonged exposure may cause chronic effects. The material as sold in solid form is generally not considered hazardous. However, if the process involves grinding, melting, cutting or any other process that causes a release of dust or fumes, hazardous levels of airborne particulate could be generated.

## 3. Composition/information on ingredients

|                                      |                   |                             |                 |                          |
|--------------------------------------|-------------------|-----------------------------|-----------------|--------------------------|
| <b>Substance or mixture</b>          | Substance         | <b>Gazette notification</b> |                 |                          |
| <b>Chemical name or generic name</b> | <b>CAS Number</b> | <b>ENCS no.</b>             | <b>ISHL no.</b> | <b>Concentration (%)</b> |
| Lead Fluoride                        | 7783-46-2         | (1)-337                     | (1)-337         | 100                      |

**Chemical formula** F2-Pb (7783-46-2)

## 4. First aid measures

**If inhaled** Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison center or doctor/physician if you feel unwell.

**If on skin** Wash off with soap and water. Get medical attention if irritation develops and persists.

**If in eyes** Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**If swallowed** Rinse mouth. Get medical attention if symptoms occur.

**Most important symptoms/effects, acute and delayed** Narcosis. Behavioral changes. Decrease in motor functions. Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Edema. Prolonged exposure may cause chronic effects.

**Protection of first-aid responders** IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (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.

**Notes to physician** Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

## 5. Fire-fighting measures

**Extinguishing media** Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

**Extinguishing media to avoid** Do not use water jet as an extinguisher, as this will spread the fire.

**Specific hazards** During fire, gases hazardous to health may be formed.

**Special fire fighting procedures** Move containers from fire area if you can do so without risk.

**Protection of fire-fighters** Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**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

**Personal precautions, protective equipment and emergency procedures** Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. 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 SDS.

**Environmental precautions** Avoid discharge into drains, water courses or onto the ground.

**Methods and materials for containment and cleaning up**

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Following product recovery, flush area with water.

Small Spills: Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.

**7. Handling and storage**

**Handling**

**Technical measures (e.g. Local and general ventilation)**

No specific recommendations.

**Safe handling advice**

Avoid contact with eyes. When using, do not eat, drink or smoke. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wash hands thoroughly after handling. Observe good industrial hygiene practices. Use personal protection recommended in Section 8 of the SDS.

**Contact avoidance measures**

For further information, please refer to section 10 of the SDS.

**Hygiene measures**

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

**Storage**

**Safe storage conditions**

Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).

**Safe packaging materials**

Store in original tightly closed container.

**8. Exposure controls/personal protection**

**Control parameters**

Follow standard monitoring procedures.

**Occupational exposure limits**

**Japan. OELs - ISHL. (Workplace Environment Assessment Standards)**

| Material                      | Type | Value      |
|-------------------------------|------|------------|
| Lead Fluoride (CAS 7783-46-2) | TLV  | 0.05 mg/m3 |

**Japan. OELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits)**

| Material                      | Type | Value     |
|-------------------------------|------|-----------|
| Lead Fluoride (CAS 7783-46-2) | TWA  | 0.1 mg/m3 |

**Biological limit values**

**Japan. BELs - JSOH (Japan Society of Occupational Health: Recommendation of Occupational Exposure Limits Based on Biological Monitoring)**

| Material                      | Value     | Determinant            | Specimen   | Sampling Time |
|-------------------------------|-----------|------------------------|--|---------------|
| Lead Fluoride (CAS 7783-46-2) | 800 µg/l  | Protoporphyrin         | Blood  | *             |
|                               | 400 µg/l  | Lead                   | Blood  | *             |
|                               | 2000 µg/l | Protoporphyrin         | Reduction from individual baseline activity in red blood cells | *             |
|                               | 5 mg/l    | δ-Aminolevulini c acid | Urine  | *             |

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

|                                      |  |
|--------------------------------------|--|
| <b>Engineering measures</b>          | Provide eyewash station. Provide adequate local exhaust ventilation to maintain worker exposure below exposure limits. |
| <b>Personal protective equipment</b> |  |
| <b>Respiratory protection</b>        | In case of insufficient ventilation, wear suitable respiratory equipment.  |
| <b>Hand protection</b>               | Wear appropriate chemical resistant gloves.  |
| <b>Eye protection</b>                | Wear safety glasses with side shields (or goggles).  |
| <b>Skin and body protection</b>      | Not available.   |

## 9. Physical and chemical properties

|  |                                  |
|--|----------------------------------|
| <b>Physical state</b>  | Solid.                           |
| <b>Form</b>  | Solid.                           |
| <b>Color</b>   | Not available.                   |
| <b>Odor</b>  | Not available.                   |
| <b>Melting point/freezing point</b>                            | 1515.2 °F (824 °C)               |
| <b>Boiling point, initial boiling point, and boiling range</b> | 2359.4 °F (1293 °C)              |
| <b>Combustibility</b>  | Not available.                   |
| <b>Lower and upper explosion limit / flammability limit</b>    |                                  |
| <b>Explosive limit - lower (%)</b>                             | Not available.                   |
| <b>Explosive limit - upper (%)</b>                             | Not available.                   |
| <b>Flash point</b>   | Not available.                   |
| <b>Auto-ignition temperature</b>                               | Not available.                   |
| <b>Decomposition temperature</b>                               | Not available.                   |
| <b>pH</b>  | Not available.                   |
| <b>Kinematic viscosity</b>                                     | Not available.                   |
| <b>Solubility(ies)</b>   |                                  |
| <b>Solubility (water)</b>                                      | Not available.                   |
| <b>Partition coefficient (n-octanol/water) (log value)</b>     | Not available.                   |
| <b>Vapor pressure</b>  | < 0.0000001 kPa at 25 °C         |
| <b>Density and/or relative density</b>                         |                                  |
| <b>Density</b>   | 8.44 g/cm <sup>3</sup> estimated |
| <b>Relative density</b>  | Not available.                   |
| <b>Vapor density</b>   | Not available.                   |
| <b>Particle characteristics</b>                                | Not available.                   |
| <b>Other information</b>                                       |                                  |
| <b>Explosive properties</b>                                    | Not explosive.                   |
| <b>Molecular formula</b>                                       | F <sub>2</sub> -Pb               |
| <b>Molecular weight</b>  | 245.2 g/mol                      |
| <b>Oxidizing properties</b>                                    | Not oxidizing.                   |
| <b>Specific gravity</b>  | 8.45                             |

## 10. Stability and reactivity

|   |  |
|---|--|
| <b>Reactivity</b>                         | The product is stable and non-reactive under normal conditions of use, storage and transport.    |
| <b>Chemical stability</b>                 | Material is stable under normal conditions.  |
| <b>Possibility of hazardous reactions</b> | No dangerous reaction known under conditions of normal use.                                      |
| <b>Conditions to avoid</b>                | Avoid temperatures exceeding the decomposition temperature. Contact with incompatible materials. |
| <b>Incompatible materials</b>             | Strong oxidizing agents.   |
| <b>Hazardous decomposition products</b>   | No hazardous decomposition products are known.   |

## 11. Toxicological information

### Acute toxicity

| Product                       | Species | Test Results |
|-------------------------------|---------|--------------|
| Lead Fluoride (CAS 7783-46-2) |         |              |
| <u>Acute</u>                  |         |              |
| Oral                          |         |              |
| LD50                          | Mouse   | 3015 mg/kg   |
|                               | Rat     | 3031 mg/kg   |

**Skin corrosion/irritation** Prolonged skin contact may cause temporary irritation.

**Serious eye damage/eye irritation** Causes serious eye irritation.

### Respiratory or skin sensitization

**Respiratory sensitization** Not a respiratory sensitizer.

**Skin sensitization** This product is not expected to cause skin sensitization.

**Germ cell mutagenicity** No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

**Carcinogenicity** May cause cancer.

#### ACGIH Carcinogens

Lead Fluoride (CAS 7783-46-2) A3 Confirmed animal carcinogen with unknown relevance to humans.  
A4 Not classifiable as a human carcinogen.

#### IARC Monographs. Overall Evaluation of Carcinogenicity

Lead Fluoride (CAS 7783-46-2) 2A Probably carcinogenic to humans.

#### Japan Society for Occupational Health: Carcinogen

Lead Fluoride (CAS 7783-46-2) 2B Possibly carcinogenic to humans.

#### NTP Report on Carcinogens

Lead Fluoride (CAS 7783-46-2) Reasonably Anticipated to be a Human Carcinogen.

**Reproductive toxicity** May damage fertility or the unborn child.

**Specific target organ toxicity - single exposure** Causes damage to organs (blood, central nervous system, kidney). May cause respiratory irritation.

**Specific target organ toxicity - repeated exposure** Causes damage to organs (blood, bone, central nervous system, kidney) through prolonged or repeated exposure.

**Aspiration hazard** Not an aspiration hazard.

## 12. Ecological information

**Ecotoxicity** The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

**Persistence and degradability** No data is available on the degradability of this product.

**Bioaccumulation** No data available.

**Mobility in soil** No data available.

**Hazardous to the ozone layer** No data available.

**Other hazardous 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

**Residual waste** Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

**Contaminated packaging** Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

**Local disposal regulations**

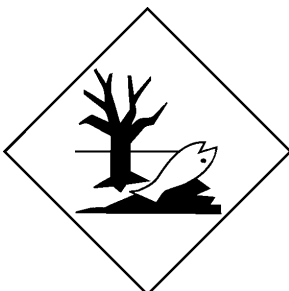
Contract with a disposal operator licensed by the Law on Disposal and Cleaning. Dispose of contents/container in accordance with local/regional/national/international regulations. When your own wastewater treatment plant is not available, collect entire waste and then charge to a licensed industrial waste management professional with manifests for industrial waste.

**14. Transport information****IATA**

|                                     |   |
|-------------------------------------|---|
| <b>UN number</b>                    | 2291  |
| <b>UN proper shipping name</b>      | Lead compound, soluble, n.o.s. (Lead Fluoride)                          |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>                        | 6.1(PGIII)  |
| <b>Subsidiary risk</b>              | -   |
| <b>Packing group</b>                | III   |
| <b>Environmental hazards</b>        | No.   |
| <b>ERG Code</b>                     | 6L  |
| <b>Special precautions for user</b> | Read safety instructions, SDS and emergency procedures before handling. |
| <b>Other information</b>            |   |
| <b>Passenger and cargo aircraft</b> | Allowed with restrictions.  |
| <b>Cargo aircraft only</b>          | Allowed with restrictions.  |

**IMDG**

|   |   |
|---|---|
| <b>UN number</b>  | 2291  |
| <b>UN proper shipping name</b>  | LEAD COMPOUND, SOLUBLE, N.O.S. (Lead Fluoride), MARINE POLLUTANT        |
| <b>Transport hazard class(es)</b>   |   |
| <b>Class</b>  | 6.1(PGIII)  |
| <b>Subsidiary risk</b>  | -   |
| <b>Packing group</b>  | III   |
| <b>Environmental hazards</b>  |   |
| <b>Marine pollutant</b>   | Yes   |
| <b>EmS</b>  | F-A, S-A  |
| <b>Special precautions for user</b>   | Read safety instructions, SDS and emergency procedures before handling. |
| <b>Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code</b> | Not applicable.   |
| <b>General information</b>  | IMDG Regulated Marine Pollutant.  |

**IATA; IMDG****Marine pollutant****National regulations**

Follow regulation in section 15 for domestic transportation.

**Emergency Response Guide Number**

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## 15. Regulatory information

### Industrial Safety and Health Act

#### Notifiable substances

LEAD AND LEAD COMPOUNDS, INORGANIC

Table 9 Ordinance No. 411

#### Labeling substances

Not regulated.

### Poisonous and Deleterious Substances Control Act

#### Specified poisonous substances

Not regulated.

#### Poisonous substances

Not regulated.

#### Deleterious substances

LEAD COMPOUNDS, EXCLUDING TRILEAD TETRAOXIDE, HYDROXY LEAD(II) CARBONATE, AND LEAD(II) SULFATE

### Act on the Regulation of Manufacture and Evaluation of Chemical Substances

#### Class I specified chemical substances

Not regulated.

#### Class II specified chemical substances

Not regulated.

#### Monitoring chemical substances

Not regulated.

#### Priority Assessment Chemical Substances (PACs)

Not regulated.

#### Reporting Exempted Substances

Not regulated.

### Law concerning Pollutant Release and Transfer Register

#### Specified class 1 substances (substance name, ordinance number and content)

LEAD COMPOUNDS

Ordinance No. 305

(Lead Fluoride)

#### Class 1 substances (substance name, ordinance number and content)

HYDROGEN FLUORIDE AND ITS WATER

Ordinance No. 374

(Lead Fluoride)

SOLUBLE SALTS

#### Class 2 substances (substance name, ordinance number and content)

Not regulated.

### Ship Safety Law, Dangerous Goods Marine Transport and Storage Rule

Toxic substances

### Air Law, Enforcement Rule

Toxic substances

### Explosives Control Act

Not regulated.

### Waste Management and Public Cleansing Act

DUST CONTAINING LEAD AND ITS COMPOUNDS

SLUDGE, SPENT ACID, AND WASTE ALKALI CONTAINING LEAD AND ITS COMPOUNDS

### Air Pollution Control Act

LEAD AND ITS COMPOUNDS-BAKING FURNACE AND SMELTING FURNACE FOR MANUFACTURING GLASS USING LEAD OXIDES AS RAW MATERIALS

LEAD AND ITS COMPOUNDS-CALCINATION FURNACE, CONVERTER, SMELTING FURNACE AND DRYING FURNACE FOR REFINING COPPER, LEAD OR ZINC

LEAD AND ITS COMPOUNDS-SINTERING FURNACE AND BLAST FURNACE FOR REFINING COPPER, LEAD OR ZINC

LEAD AND ITS COMPOUNDS-SMELTING FURNACE, ETC., FOR SECONDARY REFINING OF LEAD FOR MANUFACTURING LEAD PIPE, SHEET, WIRE, LEAD STORAGE BATTERY OR LEAD PIGMENT

## 16. Other information

### Bibliography

ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices  
HSDB® - Hazardous Substances Data Bank  
IARC Monographs. Overall Evaluation of Carcinogenicity  
Japan Chemical Industry Association (JCIA) GHS Guideline, June 2012  
Japan Society for Occupational Health, Recommendation of Occupational Exposure Limits  
JIS Z 7252:2014 Classification of chemicals based on "Globally Harmonized System of Classification and Labelling of Chemicals (GHS)"  
JIS Z 7253:2012 Hazard communication of chemicals based on GHS - Labelling and Safety Data Sheet (SDS)  
National Toxicology Program (NTP) Report on Carcinogens

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### Revision information

This document has undergone significant changes and should be reviewed in its entirety.