SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Trade name: 1mol/L Lithium hexafluorophosphate in (1:1 vol.%) Ethylene carbonate : Dimethyl carbonate - 99.9%
Article number: E001

1.2 Relevant identified uses of the substance or mixture and uses advised against No other important information available.
Application of the substance / the mixture
This product is intended for the exclusive use of Research and Development

1.3 Details of the supplier of the safety data sheet
Manufacturer/Supplier:
Solvionic SA
195 route d'Espagne
31036 TOULOUSE
FRANCE
Phone number: +33 (0)5.34.63.35.35
Further information obtainable from: HSE Department

1.4 Emergency telephone number:
ORFILA (INRS): +33 (0)1.45.42.59.59
CCHST: 1-800-668-4284 (Canada & U.S.A)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
Classification according to Regulation (EC) No 1272/2008

GHS02
Flam. Liq. 3 H226 Flammable liquid and vapour.

GHS08
STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure.

GHS05
Skin Corr. 1B H314 Causes severe skin burns and eye damage.
Eye Dam. 1 H318 Causes serious eye damage.

GHS07
Acute Tox. 4 H302 Harmful if swallowed.

2.2 Label elements
Labelling according to Regulation (EC) No 1272/2008 The product is classified and labelled according to the CLP regulation.

Hazard pictograms

GHS02 GHS05 GHS07 GHS08

Signal word Danger
Hazard-determining components of labelling:
ethylene carbonate
Lithium hexafluorophosphate

Hazard statements
H226 Flammable liquid and vapour.
H302 Harmful if swallowed.
H314 Causes severe skin burns and eye damage.
H372 Causes damage to organs through prolonged or repeated exposure.

(Contd. on page 2)
SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures
- Description: Mixture of substances listed below with nonhazardous additions.

- Dangerous components:

<table>
<thead>
<tr>
<th>CAS</th>
<th>EINECS</th>
<th>Name</th>
<th>PBT</th>
<th>vPvB</th>
<th>STOT RE 2</th>
<th>Acute Tox. 4</th>
<th>Acute Tox. 4</th>
<th>Eye Irrit. 2</th>
<th>H312</th>
<th>Eye Dam. 1, H318</th>
</tr>
</thead>
<tbody>
<tr>
<td>96-49-1</td>
<td>202-510-0</td>
<td>ethylene carbonate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>616-38-6</td>
<td>210-478-4</td>
<td>dimethyl carbonate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21324-40-3</td>
<td>244-334-7</td>
<td>Lithium hexafluorophosphate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Additional information: For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures
- General information:
Immediately remove any clothing soiled by the product.
Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.
- After inhalation: In case of unconsciousness place patient stably in side position for transportation.
- After skin contact: Immediately wash with water and soap and rinse thoroughly.
- After eye contact: Rinse opened eye for several minutes under running water. Then consult a doctor.
- After swallowing: Call for a doctor immediately. Drink plenty of water and provide fresh air. Call for a doctor immediately.

4.2 Most important symptoms and effects, both acute and delayed No further relevant information available.

4.3 Indication of any immediate medical attention and special treatment needed No further relevant information available.

SECTION 5: Firefighting measures

5.1 Extinguishing media
- Suitable extinguishing agents: CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- For safety reasons unsuitable extinguishing agents: Water with full jet

5.2 Special hazards arising from the substance or mixture During heating or in case of fire poisonous gases are produced.

5.3 Advice for firefighters
- Protective equipment: Mouth respiratory protective device.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
Use individual protective gear.

6.2 Environmental precautions: Do not allow to enter sewers/ surface or ground water.
Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 16.04.2019
Revision: 16.04.2019
Version number 4

Trade name: 1mol/L Lithium hexafluorophosphate in (1:1 vol.%) Ethylene carbonate : Dimethyl carbonate - 99,9%

6.3 Methods and material for containment and cleaning up:
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralising agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.

6.4 Reference to other sections
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage
7.1 Precautions for safe handling
Ensure good ventilation/exhaustion at the workplace.
Prevent formation of aerosols.

- Information about fire - and explosion protection:
  Keep ignition sources away - Do not smoke.
  Protect against electrostatic charges.
  Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities
- Storage:
  Requirements to be met by storerooms and receptacles: No special requirements.
  Information about storage in one common storage facility: Not required.
  Further information about storage conditions: Keep container tightly sealed.

7.3 Specific end use(s)
No further relevant information available.

SECTION 8: Exposure controls/personal protection
Additional information about design of technical facilities: No further data; see item 7.

8.1 Control parameters
- Ingredients with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- Additional information: The lists valid during the making were used as basis.

8.2 Exposure controls
- Personal protective equipment:
  - General protective and hygienic measures:
    Keep away from foodstuffs, beverages and feed.
    Immediately remove all soiled and contaminated clothing
    Wash hands before breaks and at the end of work.
    Store protective clothing separately.
    Avoid contact with the eyes.
    Avoid contact with the eyes and skin.
  - Respiratory protection:
    In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.
  - Protection of hands:
    Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

Material of gloves
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
9.1 Information on basic physical and chemical properties

- General Information
  - Form: Liquid
  - Colour: Colourless
  - Odour: Not determined.
  - Odour threshold: Not determined.
- pH-value: Not determined.
- Conductivity
  - at 20°C: 10,39 mS/cm
  - at 25°C: 11,38 mS/cm
- Change in condition
  - Melting point/freezing point: Undetermined.
  - Initial boiling point and boiling range: 90,5 °C
  - Flash point: 23 - 60 °C
  - Flammability (solid, gas): Not applicable.
  - Ignition temperature: 458 °C
- Decomposition temperature:
  - Auto-ignition temperature: Product is not selfigniting.
  - Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
  - Explosion limits: Not determined.
  - Vapour pressure at 25 °C: 40 hPa
- Density at 20 °C: 1,289 g/cm³
  - Bulk density: 1,289 kg/m³
  - Relative density: Not determined.
  - Vapour density: Not determined.
  - Evaporation rate: Not determined.
- Solubility in / Miscibility with
  - water: Not miscible or difficult to mix.
- Partition coefficient: n-octanol/water: Not determined.
- Viscosity
  - Dynamic: Not determined.
  - Kinematic: Not determined.
- Solvent content
  - VOC (EC): 39,46 %

9.2 Other information
No further relevant information available.

SECTION 10: Stability and reactivity

10.1 Reactivity
No further relevant information available.

10.2 Chemical stability
Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

10.3 Possibility of hazardous reactions
No dangerous reactions known.

10.4 Conditions to avoid
No further relevant information available.

10.5 Incompatible materials
Strong oxidizer and strong base.
SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity
Harmful if swallowed.

LD/LC50 values relevant for classification:

| CAS: 96-49-1 ethylene carbonate | Oral   | LS0  | 10.400 mg/kg (rat) |
|                                | Dermal | LD50 | 2.000 mg/kg (rat)  |

| CAS: 616-38-6 dimethyl carbonate | Oral   | LS0  | 13.000 mg/kg (rat) |
|                                   | Dermal | LD50 | >5.000 mg/kg (rabbit) |

| CAS: 21324-40-3 Lithium hexafluorophosphate | Oral   | LS0  | 200 mg/kg (rat) |
|                                            | Dermal | LD50 | 300 mg/kg (rabbit) |
|                                            |       |     | mg/kg (rabbit)  |

- Primary irritant effect:
  - Skin corrosion/irritation
    Causes severe skin burns and eye damage.
  - Serious eye damage/irritation
    Causes serious eye damage.

- Respiratory or skin sensitisation Based on available data, the classification criteria are not met.
- CMR effects (carcinogenicy, mutagenicity and toxicity for reproduction)
  - Germ cell mutagenicity Based on available data, the classification criteria are not met.
  - Carcinogenicity Based on available data, the classification criteria are not met.
  - Reproductive toxicity Based on available data, the classification criteria are not met.

- Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.
- Specific target organ toxicity - repeated exposure
  Causes damage to organs through prolonged or repeated exposure.
- Aspiration hazard Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

12.1 Toxicity
Aquatic toxicity: No further relevant information available.

12.2 Persistence and degradability No further relevant information available.

12.3 Bioaccumulative potential No further relevant information available.

12.4 Mobility in soil No further relevant information available.

Additional ecological information:
General notes:
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Must not reach sewage water or drainage ditch undiluted or unneutralised.
Danger to drinking water if even small quantities leak into the ground.

12.5 Results of PBT and vPvB assessment
PBT: Not applicable.
vPvB: Not applicable.
12.6 Other adverse effects No further relevant information available.
SECTION 13: Disposal considerations

13.1 Waste treatment methods

**Recommendation** Must not be disposed together with household garbage. Do not allow product to reach sewage system.

<table>
<thead>
<tr>
<th>European waste catalogue</th>
</tr>
</thead>
<tbody>
<tr>
<td>HP 3 Flammable</td>
</tr>
<tr>
<td>HP 5 Specific Target Organ Toxicity (STOT)/Aspiration Toxicity</td>
</tr>
<tr>
<td>HP 6 Acute Toxicity</td>
</tr>
<tr>
<td>HP 8 Corrosive</td>
</tr>
</tbody>
</table>

**Uncleaned packaging:**

**Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

14.1 UN-Number

| ADR/RID/ADN, IMDG, IATA | UN2920 |

14.2 UN proper shipping name

| ADR/RID/ADN | UN2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Lithium hexafluorophosphate, DIMETHYL CARBONATE) |
| IMDG, IATA  | CORROSIVE LIQUID, FLAMMABLE, N.O.S. (Lithium hexafluorophosphate, DIMETHYL CARBONATE) |

14.3 Transport hazard class(es)

<table>
<thead>
<tr>
<th>ADR/RID/ADN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Label</td>
</tr>
<tr>
<td>IMDG</td>
</tr>
</tbody>
</table>

- Class 8 Corrosive substances.
- Label 8+3

<table>
<thead>
<tr>
<th>IMDG</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Label</td>
</tr>
</tbody>
</table>

- Class 8 Corrosive substances.
- Label 8/3

<table>
<thead>
<tr>
<th>IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class</td>
</tr>
<tr>
<td>Label</td>
</tr>
</tbody>
</table>

- Class 8 Corrosive substances.
- Label 8 (3)

14.4 Packing group

| ADR/RID/ADN, IMDG, IATA | II |

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

**Warning:** Corrosive substances.

**Danger code (Kemler):** 83

**EMS Number:** F,E,S-C

Stowage Category

- E SW1 Protected from sources of heat.
- SW2 Clear of living quarters.

14.7 Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable.
**Safety data sheet**

according to 1907/2006/EC, Article 31

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Revision: 16.04.2019  
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**Trade name:** 1mol/L Lithium hexafluorophosphate in (1:1 vol.%) Ethylene carbonate : Dimethyl carbonate - 99.9%

**Transport/Additional information:**

<table>
<thead>
<tr>
<th>ADR/RID/ADN</th>
<th>1L</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited quantities (LQ)</td>
<td>Code: E2</td>
</tr>
</tbody>
</table>
| Excepted quantities (EQ) | Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml |
| Transport category | 2 |
| Tunnel restriction code | D/E |
| IMDG | 1L |
| Limited quantities (LQ) | Code: E2 |
| Excepted quantities (EQ) | Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 500 ml |

**UN "Model Regulation":**

UN 2920 CORROSIVE LIQUID, FLAMMABLE, N.O.S. (LITHIUM HEXAFLUOROPHOSPHATE, DIMETHYL CARBONATE), 8 (3), II

**SECTION 15: Regulatory information**

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

**Directive 2012/18/EU**

Named dangerous substances - ANNEX I None of the ingredients is listed.

**Seveso category** P5c FLAMMABLE LIQUIDS

Qualifying quantity (tonnes) for the application of lower-tier requirements 5.000 t  
Qualifying quantity (tonnes) for the application of upper-tier requirements 50.000 t

REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3

15.2 Chemical safety assessment:

For this product, no chemical safety assessment has been performed.  
A Chemical Safety Assessment has not been carried out.

**SECTION 16: Other information**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

For research and development use only.

**Relevant phrases**

H225 Highly flammable liquid and vapour.  
H301 Toxic if swallowed.  
H302 Harmful if swallowed.  
H312 Harmful in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H318 Causes serious eye damage.  
H319 Causes serious eye irritation.  
H372 Causes damage to organs through prolonged or repeated exposure.  
H373 May cause damage to organs through prolonged or repeated exposure.

**Department issuing SDS:** Environmental Protection Service

**Contact:**

Mail: hse@solvionic.com  
Phone number: +33 (0)5.34.63.35.35

**Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
IMDG: International Maritime Code for Dangerous Goods  
IATA: International Air Transport Association  
GHS: Globally Harmonised System of Classification and Labelling of Chemicals  
EINECS: European Inventory of Existing Commercial Chemical Substances  
ELINCS: European List of Notified Chemical Substances  
CAS: Chemical Abstracts Service (division of the American Chemical Society)  
VOC: Volatile Organic Compounds (USA, EU)  
LC50: Lethal concentration, 50 percent  
LD50: Lethal dose, 50 percent  
PBT: Persistent, Bioaccumulative and Toxic

(Contd. on page 8)
### Trade name: 1mol/L Lithium hexafluorophosphate in (1:1 vol.%) Ethylene carbonate : Dimethyl carbonate - 99,9%

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>vPvB</td>
<td>very Persistent and very Bioaccumulative</td>
</tr>
<tr>
<td>Flam. Liq. 2</td>
<td>Flammable liquids – Category 2</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids – Category 3</td>
</tr>
<tr>
<td>Acute Tox. 3</td>
<td>Acute toxicity – Category 3</td>
</tr>
<tr>
<td>Acute Tox. 4</td>
<td>Acute toxicity – Category 4</td>
</tr>
<tr>
<td>Skin Corr. 1B</td>
<td>Skin corrosion/irritation – Category 1B</td>
</tr>
<tr>
<td>Eye Dam. 1</td>
<td>Serious eye damage/eye irritation – Category 1</td>
</tr>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation – Category 2</td>
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<tr>
<td>STOT RE 1</td>
<td>Specific target organ toxicity (repeated exposure) – Category 1</td>
</tr>
<tr>
<td>STOT RE 2</td>
<td>Specific target organ toxicity (repeated exposure) – Category 2</td>
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