

Safety data sheet
according to 1907/2006/EC, Article 31

Printing date 15.12.2021

Version number 6

Revision: 15.12.2021

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

1.1 Product identifier

Trade name: 1M LiPF₆ in DMC:EC:PC 3:1:1 (vol.) + 1wt% VC

Article number: E020

1.2 Relevant identified uses of the substance or mixture and uses advised against No other important information available.

- **Sector of Use** SU24 Scientific research and development

- **Product category** PC21 Laboratory chemicals

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

11 chemin des Silos

31100 TOULOUSE

FRANCE

T: +33 (0).32.26.20.20

@: contact@solvionic.com

Further information obtainable from: Department of Regulatory affairs

1.4 Emergency telephone number:

- United Kingdom: Guy's & St Thomas' Poisons Unit Medical Toxicology Unit, Guy's & St Thomas' Hospital Trust, +44 20 7188 7188.

- Ireland: National Poisons Information Centre Beaumont Hospital, +353 1 809 2566 (Healthcare professionals 24/7), +353 1 809 2166 (public, 8am - 10pm, 7/7).

- France ORFILA (INRS): +33 (0)1.45.42.59.59.

- Belgique, Belgie/Belgium: Centre Anti-Poisons/Antigifcentrum c/o Hôpital Central de la Base - Reine Astrid

Rue Bruyn 1 - 1120 Bruxelles/Brussel. Toutes les questions urgentes concernant une intoxication: 070 245 245 (gratuit, 24/7), si pas accessible 02 264 96 30 (tarif normal). Alle dringende vragen over vergiftigingen: 070 245 245 (gratis, 24/7), of indien onbereikbaar tel. 02 264 96 30 (normaal tarief).

- Sverige/ Sweden: Giftinformationscentralen Box 60 500 : 112 – begär Giftinformation ,+46 10 456 6700 (Från utlandet)

- Ελλάδα / Greece: Poisons Information Centre Children's Hospital P&A Kyriakou, +30 21 07 79 37 77.

- Italia/Italy: Centro Antiveleni di Roma CAV Policlinico "A. Gemelli", Dipartimento di Tossicologia Clinica Università Cattolica del Sacro Cuore, +39 06 305 4343.

- España/ Spain: Servicio de Información Toxicológica Instituto Nacional de Toxicología y Ciencias Forenses, Departamento de Madrid, +34 91 562 04 20 (solo emergencias toxicológicas), Información en español (24h/365 días).

- Nederland/ Netherlands (NVIC): Uitsluitend bestemd om professionele hulpverleners te informeren bij acute vergiftigingen, +31 (0)88 755 8000.

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008

Flam. Liq. 3 H226 Flammable liquid and vapour.

Acute Tox. 4 H302 Harmful if swallowed.

Skin Corr. 1B H314 Causes severe skin burns and eye damage.

Eye Dam. 1 H318 Causes serious eye damage.

Skin Sens. 1 H317 May cause an allergic skin reaction.

STOT RE 1 H372-H373 Causes damage to the bones and the teeth through prolonged or repeated exposure. May cause damage to the kidneys, the bones and the teeth through prolonged or repeated exposure. Route of exposure: Oral.

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:

Lithium hexafluorophosphate

ethylene carbonate

vinylene carbonate

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Trade name: 1M LiPF₆ in DMC:EC:PC 3:1:1 (vol.) + 1wt% VC

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Hazard statements

- H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H372-H373 Causes damage to the bones and the teeth through prolonged or repeated exposure. May cause damage to the kidneys, the bones and the teeth through prolonged or repeated exposure. Route of exposure: Oral.

Precautionary statements

Store at temperatures not exceeding +4°C.

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 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/doctor.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

2.3 Other hazards**Results of PBT and vPvB assessment**

- PBT:** Not applicable.
vPvB: Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Chemical characterisation: Mixtures**- Description:**

Mixture of substances listed below with nonhazardous additions.
 Mixture: consisting of the following components.

- Dangerous components:

CAS: 616-38-6 EINECS: 210-478-4 Index number: 607-013-00-6	dimethyl carbonate Flam. Liq. 2, H225	>40–≤60%
CAS: 96-49-1 EINECS: 202-510-0	ethylene carbonate STOT RE 2, H373; Acute Tox. 4, H302; Eye Irrit. 2, H319	>10–≤25%
CAS: 108-32-7 EINECS: 203-572-1 Index number: 607-194-00-1	propylene carbonate Eye Irrit. 2, H319	>10–≤25%
CAS: 21324-40-3 EINECS: 244-334-7	Lithium hexafluorophosphate Acute Tox. 3, H301; STOT RE 1, H372; Skin Corr. 1B, H314; Eye Dam. 1, H318	>10–≤25%
CAS: 872-36-6 EINECS: 212-825-5	vinylene carbonate Acute Tox. 3, H311; STOT RE 2, H373; Eye Dam. 1, H318; Aquatic Chronic 2, H411; Acute Tox. 4, H302; Skin Irrit. 2, H315; Skin Sens. 1, H317	≤2,5%

- 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:

Supply fresh air and to be sure call for a doctor.
 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

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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:** No special measures required.

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.

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.

Maximum storage temperature: Store at temperatures not exceeding +4°C.

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

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Additional information about design of technical facilities: No further data; see item 7.

- **Ingredients with limit values that require monitoring at the workplace:**

CAS: 21324-40-3 Lithium hexafluorophosphate

OEL (Sweden)	Short-term value: 0,02 mg/m ³ som Li; inhalerbar fraktion
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. **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

Neoprene gloves

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To minimise the wetness in the glove due to perspiration changing of gloves during a shift is required.

Material of gloves Neoprene gloves

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.

. **Eye protection:**



Tightly sealed goggles

. **Body protection:** Use protective suit.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

- General Information

. Appearance:

. Form:	Fluid
. Color:	Colorless to light yellow
. Odor:	Not determined.
. Odor threshold:	Not determined.
. pH-value:	Not determined

- Change in condition

. Melting point/freezing point:	Undetermined.
. Initial boiling point and boiling range:	242 °C
. Flash point:	26 °C
. Flammability (solid, gas):	Not applicable.
. Ignition temperature:	430 °C
. Decomposition temperature:	Not determined.
. Auto-ignition temperature:	Product is not selfigniting.
. Explosive properties:	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
. Explosion limits:	
. Lower:	1,8 Vol %
. Upper:	16,1 Vol %
. Vapour pressure at 20 °C:	0 hPa

. Density at 20 °C:	1,236 g/cm ³
. Bulk density:	1236 kg/m ³
. 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:	
. Organic solvents:	18,2 %
. VOC (EC)	66,82 %

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.

10.6 Hazardous decomposition products: No dangerous decomposition products known.

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SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Harmful if swallowed.

LD/LC50 values relevant for classification:

ATE (Acute Toxicity Estimates)

Oral	LD50	1558–1591 mg/kg (rat)
Dermal	LD50	7497 mg/kg

CAS: 616-38-6 dimethyl carbonate

Oral	LD50	13000 mg/kg (rat)
Dermal	LD50	>5000 mg/kg (rabbit)

CAS: 96-49-1 ethylene carbonate

Oral	LD50	10400 mg/kg (rat)
Dermal	LD50	2000 mg/kg (rat)

CAS: 108-32-7 propylene carbonate

Oral	LD50	29000 mg/kg (rat)
Dermal	LD50	>2000 mg/kg (rat)

CAS: 21324-40-3 Lithium hexafluorophosphate

Oral	LD50	200 mg/kg (rat)
		300 mg/kg (rabbit)
Dermal	LD50	mg/kg (rat)
		mg/kg (rabbit)

CAS: 872-36-6 vinylene carbonate

Oral	LD50	300–500 mg/kg (rat)
Dermal	LD50	300 mg/kg (ATE)

- 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

May cause an allergic skin reaction.

Additional toxicological information:

- CMR effects (carcinogenicity, 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 the bones and the teeth through prolonged or repeated exposure. May cause damage to the kidneys, the bones and the teeth through prolonged or repeated exposure. Route of exposure: Oral.

- 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.

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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.

European waste catalogue

HP3	Flammable
HP5	Specific Target Organ Toxicity (STOT)/Aspiration Toxicity
HP6	Acute Toxicity
HP8	Corrosive

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)

ADR/RID/ADN



Class
Label
IMDG

8 Corrosive substances.
8+3



Class
Label
IATA

8 Corrosive substances.
8/3



Class
Label

8 Corrosive substances.
8 (3)

14.4 Packing group

ADR/RID/ADN, IMDG, IATA

II

14.5 Environmental hazards:

Not applicable.

14.6 Special precautions for user

Hazard identification number (Kemler code):

Warning: Corrosive substances.

EMS Number:

83

Stowage Category

F-E,S-C

Stowage Code

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.

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Transport/Additional information:**ADR/RID/ADN**
Limited quantities (LQ)
Excepted quantities (EQ)

 IL
 Code: E2
 Maximum net quantity per inner packaging: 30 ml
 Maximum net quantity per outer packaging: 500 ml

Transport category
Tunnel restriction code

 2
 D/E
IMDG
Limited quantities (LQ)
Excepted quantities (EQ)

 IL
 Code: E2
 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
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:**
 Lithium hexafluorophosphate
 ethylene carbonate
 vinylene carbonate
Hazard statements
 H226 Flammable liquid and vapour.
 H302 Harmful if swallowed.
 H314 Causes severe skin burns and eye damage.
 H317 May cause an allergic skin reaction.
 H372-H373 Causes damage to the bones and the teeth through prolonged or repeated exposure. May cause damage to the kidneys, the bones and the teeth through prolonged or repeated exposure. Route of exposure: Oral.
Precautionary statements
 P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
 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/doctor.
 P405 Store locked up.
 P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
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 5000 t

Qualifying quantity (tonnes) for the application of upper-tier requirements 50000 t

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

DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

None of the ingredients is listed.

15.2 Chemical safety assessment: For this product, no chemical safety assessment has been performed.

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.

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Relevant phrases

H225 Highly flammable liquid and vapour.
 H301 Toxic if swallowed.
 H302 Harmful if swallowed.
 H311 Toxic in contact with skin.
 H314 Causes severe skin burns and eye damage.
 H315 Causes skin irritation.
 H317 May cause an allergic skin reaction.
 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.
 H411 Toxic to aquatic life with long lasting effects.

Department issuing SDS: Regulatory affairs department

Contact:

Email: 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

vPvB: very Persistent and very Bioaccumulative

Flam. Liq. 2: Flammable liquids – Category 2

Flam. Liq. 3: Flammable liquids – Category 3

Acute Tox. 3: Acute toxicity – Category 3

Acute Tox. 4: Acute toxicity – Category 4

Skin Corr. 1B: Skin corrosion/irritation – Category 1B

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Dam. 1: Serious eye damage/eye irritation – Category 1

Eye Irrit. 2: Serious eye damage/eye irritation – Category 2

Skin Sens. 1: Skin sensitisation – Category 1

STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1

STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

Aquatic Chronic 2: Hazardous to the aquatic environment - long-term aquatic hazard – Category 2

UE