SECTION 1: Identification

1.1 Product identifier

Identification of the substance: 1-Ethyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide

CAS number: 174899-82-2

Alternative name(s): EMIM NTf2, EMIM TFSI

Alternative number(s): 00116.1000, 00116.2000, 00116.3000

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses:
- Product and process orientated research and development
- Laboratory chemical
- Battery fluid

Uses advised against:
- Do not use for private purposes (household)

1.3 Details of the supplier of the safety data sheet

Proionic GmbH
Parkring 18, Trakt H/1
A-8074 Grambach
Austria

Telephone: +43 (0) 316 4009-4200
Telefax: +43 (0) 316 4009-4228
e-mail: office@proionic.com
Website: www.proionic.com

1.4 Emergency telephone number

Poisoning information center Austria: +43 (0) 1 406 43 43

Emergency information service:
Mo-fr 8am-4pm (CET): +43 (0) 316/ 4009- 4200

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

The classification is based on tested substance.

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Self-classification.

<table>
<thead>
<tr>
<th>Section</th>
<th>Hazard class</th>
<th>Category</th>
<th>Hazard class and category</th>
<th>Hazard statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1O</td>
<td>acute toxicity (oral)</td>
<td>3</td>
<td>Acute Tox. 3</td>
<td>H301</td>
</tr>
</tbody>
</table>

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Labelling acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

- signal word: danger
- pictograms
GHS06

- hazard statements
  H301 Toxic if swallowed.

- precautionary statements
  P264 Wash thoroughly after handling.
  P270 Do not eat, drink or smoke when using this product.
  P301+P310 If swallowed: Immediately call a poison center/doctor.
  P330 Rinse mouth.
  P405 Store locked up.
  P501 Dispose of contents/container to industrial combustion plant.

2.3 Other hazards
Not readily biodegradable.

SECTION 3: Composition/information on ingredients

3.1 Substances
Name of substance 1-Ethyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide

Identifiers
CAS No 174899-82-2
Purity ≥98 %

Molecular formula C8H11F6N3O4S2
Molar mass 391.3 g/mol

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes
Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation
If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Provide fresh air.

Following skin contact
Wash with plenty of soap and water.

Following eye contact
Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing.
Following ingestion
Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting.

4.2 Most important symptoms and effects, both acute and delayed
See SECTION 2.

4.3 Indication of any immediate medical attention and special treatment needed
none

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media
Water spray, Alcohol resistant foam, BC-powder, Carbon dioxide (CO2)

Unsuitable extinguishing media
Water jet

5.2 Special hazards arising from the substance or mixture

Hazardous combustion products
Nitrogen oxides (NOx), Carbon monoxide (CO), Carbon dioxide (CO2), Sulfur oxides (SOx), Hydrogen fluoride (HF)

5.3 Advice for firefighters
In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel
Remove persons to safety.

For emergency responders
Suitable protective equipment. Wear breathing apparatus if exposed to vapors/dust/aerosols/gases.

6.2 Environmental precautions
Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advises on how to contain a spill
Covering of drains

Advises on how to clean up a spill
Collect spillage. Wipe up with absorbent material (e.g. cloth, fleece). Sawdust. Kieselgur (diatomite). Sand. Universal binder.

Appropriate containment techniques
Use of adsorbent materials.
Other information relating to spills and releases
Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations
Use local and general ventilation. Use only in well-ventilated areas.

Advice on general occupational hygiene
Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities
Store locked up. Keep container tightly closed and in a well-ventilated place. Keep away from other materials.

- packaging compatibilities
Only packagings which are approved (e.g. acc. to the Dangerous Goods Regulations) may be used.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters
These information are not available.

8.2 Exposure controls

Appropriate engineering controls
General ventilation.

Individual protection measures (personal protective equipment)
Wear personal protective equipment/face protection.

Eye/face protection
Wear eye/face protection.

Skin protection
- protective clothing - protection against liquid chemicals
Wear suitable protective clothing. Chemical protective clothing.

- hand protection
Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use.

- other protection measures
Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.
**Respiratory protection**
In case of inadequate ventilation wear respiratory protection.

**Environmental exposure controls**
Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Appearance</strong></td>
<td></td>
</tr>
<tr>
<td>Physical state</td>
<td>liquid</td>
</tr>
<tr>
<td>Color</td>
<td>colorless</td>
</tr>
<tr>
<td>Odor</td>
<td>characteristic</td>
</tr>
<tr>
<td><strong>Other safety parameters</strong></td>
<td></td>
</tr>
<tr>
<td>pH (value)</td>
<td>not determined</td>
</tr>
<tr>
<td>Melting point/freezing point</td>
<td>-18 – -16 °C at 1,008 hPa (EU A.1; OECD 102)</td>
</tr>
<tr>
<td>Initial boiling point and boiling range</td>
<td>no boilingpoint according to OECD103</td>
</tr>
<tr>
<td>Flash point</td>
<td>337.5 °C at 100.8 kPa (EU A.9)</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>not determined</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>not relevant, (fluid)</td>
</tr>
<tr>
<td>Explosive limits</td>
<td>not determined</td>
</tr>
<tr>
<td>Vapor pressure</td>
<td>0.0000000041 Pa at 20 °C (EU A.4; OECD 104)</td>
</tr>
<tr>
<td>Density</td>
<td>1.52 g/cm³ at 20 °C (OECD 109)</td>
</tr>
<tr>
<td>Vapor density</td>
<td>this information is not available</td>
</tr>
<tr>
<td>Solubility(ies)</td>
<td>not determined</td>
</tr>
<tr>
<td>- water solubility</td>
<td>21 g/l at 25 °C, OECD 105</td>
</tr>
<tr>
<td>Partition coefficient</td>
<td></td>
</tr>
<tr>
<td>- n-octanol/water (log KOW)</td>
<td>-0.69 (pH value: 6.1, 25 °C) (OECD 117)</td>
</tr>
</tbody>
</table>
Auto-ignition temperature | not determined
Decomposition temperature | 454 °C (TGA onset)
Viscosity | not determined
Explosive properties | none
Oxidizing properties | none

Other information
Surface tension | 38.9 mN/m (20 °C) (EU A.5; OECD 115)

SECTION 10: Stability and reactivity

10.1 Reactivity
This material is not reactive under normal ambient conditions.

10.2 Chemical stability
Stable under normal conditions of use.

10.3 Possibility of hazardous reactions
No known hazardous reactions.

10.4 Conditions to avoid
Do not allow contact with air.

10.5 Incompatible materials
There is no additional information.

10.6 Hazardous decomposition products
Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Acute toxicity
Toxic if swallowed.

- classification procedure
The classification is based on tested substance. OECD 423.

<table>
<thead>
<tr>
<th>Exposure route</th>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
</tr>
</thead>
<tbody>
<tr>
<td>oral</td>
<td>LD50</td>
<td>300 mg/kg</td>
<td>rat</td>
</tr>
</tbody>
</table>

Skin corrosion/irritation
Shall not be classified as corrosive/irritant to skin.
The classification is based on tested substance. OECD 439.
Serious eye damage/eye irritation
Shall not be classified as seriously damaging to the eye or eye irritant.
- classification procedure
  The classification is based on tested substance. OECD 492.

Respiratory or skin sensitization
Shall not be classified as a respiratory or skin sensitizer.
- classification procedure
  The classification is based on tested substance. OECD 442C; OECD 442D.

Germ cell mutagenicity
Shall not be classified as germ cell mutagenic.
- classification procedure
  The classification is based on tested substance. OECD 471.

Carcinogenicity
Data are not available.

Reproductive toxicity
Data are not available.

Specific target organ toxicity - single exposure
Data are not available.

Specific target organ toxicity - repeated exposure
Data are not available.

Aspiration hazard
Data are not available.

SECTION 12: Ecological information

12.1 Toxicity
Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

<table>
<thead>
<tr>
<th>Endpoint</th>
<th>Value</th>
<th>Species</th>
<th>Method</th>
<th>Exposure time</th>
</tr>
</thead>
<tbody>
<tr>
<td>EC50</td>
<td>&gt;110.1 mg/l</td>
<td>daphnia magna</td>
<td>EU C.2; OECD 202</td>
<td>48 h</td>
</tr>
<tr>
<td>EC50</td>
<td>13.17 mg/l</td>
<td>algae</td>
<td>EU C.3; OECD 201</td>
<td>72 h</td>
</tr>
</tbody>
</table>

12.2 Persistence and degradability

<table>
<thead>
<tr>
<th>Process</th>
<th>Degradation rate</th>
<th>Time</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>carbon dioxide generation</td>
<td>1 %</td>
<td>28 d</td>
<td>EU C.29; OECD 310</td>
</tr>
</tbody>
</table>

12.3 Bioaccumulative potential
Bioaccumulation is not expected.
1-Ethyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Dispose of contents/container to industrial combustion plant.

Waste treatment-relevant information
Incineration.

Sewage disposal-relevant information
Do not empty into drains. Avoid release to the environment.

Waste treatment of containers/packages
Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks
Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

SECTION 14: Transport information

14.1 UN number
2810

14.2 UN proper shipping name
1-Ethyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide

14.3 Transport hazard class(es)
Class
6.1 (toxic substances)

14.4 Packing group
II (substance presenting medium danger)

14.5 Environmental hazards
non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user
There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code
The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations
Transport of dangerous goods by road or rail (49 CFR US DOT)

Index number: 2810
Proper shipping name: Toxic liquid, organic, n.o.s.
- particulars in the shipper's declaration
  UN2810, Toxic liquid, organic, n.o.s., (1-Ethyl-3-methyl imidazolium bis(trifluoromethylsulfonyl)imide), 6.1, II

Class: 6.1
Packing group: II
Danger label(s): 6.1

Special provisions (SP): IB2, T11, TP2, TP13, TP27
ERG No: 153

International Maritime Dangerous Goods Code (IMDG)
UN number: 2810
Proper shipping name: TOXIC LIQUID, ORGANIC, N.O.S.
Class: 6.1
Marine pollutant: -
Packing group: II
Danger label(s): 6.1

Special provisions (SP): 274
Excepted quantities (EQ): E4
Limited quantities (LQ): 100 mL
EmS: F-A, S-A
Stowage category: B

International Civil Aviation Organization (ICAO-IATA/DGR)
UN number: 2810
Proper shipping name: Toxic liquid, organic, n.o.s.
Class: 6.1
Packing group: II
Danger label(s): 6.1

Special provisions (SP): A3, A4, A137
Excepted quantities (EQ): E4
Limited quantities (LQ): 1 L
SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

Not relevant.

National regulations (Germany)
Verordnung über Anlagen zum Umgang mit wassergefährdenden Stoffen (Ordinance on facilities for handling substances hazardous to water) (AwSV)
Wassergefährdungsklasse, WGK 2 obviously hazardous to water (water hazard class)

Industry or sector specific available guidance(s)

NPCA-HMIS® III

NFPA® 704

15.2 Chemical Safety Assessment
No Chemical Safety Assessment has been carried out for this substance.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

<table>
<thead>
<tr>
<th>Abbr.</th>
<th>Descriptions of used abbreviations</th>
</tr>
</thead>
<tbody>
<tr>
<td>49 CFR US DOT</td>
<td>49 CFR § 40 U.S. Department of Transportation</td>
</tr>
<tr>
<td>CAS</td>
<td>Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)</td>
</tr>
<tr>
<td>DGR</td>
<td>Dangerous Goods Regulations (see IATA/DGR)</td>
</tr>
<tr>
<td>DOT</td>
<td>Department of Transportation (USA)</td>
</tr>
<tr>
<td>EmS</td>
<td>Emergency Schedule</td>
</tr>
<tr>
<td>ERG No</td>
<td>Emergency Response Guidebook - Number</td>
</tr>
<tr>
<td>IATA</td>
<td>International Air Transport Association</td>
</tr>
<tr>
<td>IATA/DGR</td>
<td>Dangerous Goods Regulations (DGR) for the air transport (IATA)</td>
</tr>
<tr>
<td>ICAO</td>
<td>International Civil Aviation Organization</td>
</tr>
<tr>
<td>IMDG</td>
<td>International Maritime Dangerous Goods Code</td>
</tr>
<tr>
<td>MARPOL</td>
<td>International Convention for the Prevention of Pollution from Ships (abbr. of &quot;Marine Pollutant&quot;)</td>
</tr>
<tr>
<td>OSHA</td>
<td>Occupational Safety and Health Administration (United States)</td>
</tr>
<tr>
<td>PBT</td>
<td>Persistent, Bioaccumulative and Toxic</td>
</tr>
<tr>
<td>vPvB</td>
<td>Very Persistent and very Bioaccumulative</td>
</tr>
</tbody>
</table>

Key literature references and sources for data
Transport of dangerous goods by road or rail (49 CFR US DOT).

Classification procedure
The classification is based on tested substance.

List of relevant phrases (code and full text as stated in chapter 2 and 3)

<table>
<thead>
<tr>
<th>Code</th>
<th>Text</th>
</tr>
</thead>
<tbody>
<tr>
<td>H301</td>
<td>Toxic if swallowed.</td>
</tr>
</tbody>
</table>

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