

## SAFETY DATA SHEET

### SECTION 1: IDENTIFICATION OF THE SUBSTANCE AND OF THE COMPANY/UNDERTAKING

- 1.1. Product identifier:  
**ISOBUTYRYL CHLORIDE**
- Chemical name: Isobutyryl chloride  
CAS number: 79-30-1  
EC number: 201-194-1  
REACH Registration number: 01-2119931040-57-0003; transported, isolated intermediate.
- 1.2. Relevant identified uses of the substance and uses advised against:  
Transported, isolated intermediate for industrial use.
- 1.3. Details of the supplier of the safety data sheet:  
**FRAMOCHEM FRENCH-HUNGARIAN FINE CHEMICALS LTD.**  
3700 Kazincbarcika, Szerviz út 5, Pf. 504  
Telephone: +36 (48) 311-991  
Fax: +36 (48) 512-162  
E-mail: [info@framochem.hu](mailto:info@framochem.hu)
- 1.3.1. Responsible person: -  
E-mail: [info@framochem.hu](mailto:info@framochem.hu)
- 1.4. Emergency telephone number: **Public Toxicological Health Service (ETTSZ)**  
1096 Budapest, Nagyvárad tér 2.  
Tel.: 06 1 476 6464, 06 80 201 199 (0-24 h)

### SECTION 2: HAZARDS IDENTIFICATION

- 2.1. Classification of the substance:
- Classification according to Regulation 1272/2008/EC (CLP):  
Flammable liquids, Hazard Category 2 – H225  
Corrosive to metals, Hazard Category 1 – H290  
Acute toxicity (oral), Hazard Category 4 – H302  
Skin corrosion/irritation, Hazard Category 1A – H314  
Serious eye damage/eye irritation, Hazard Category 1 – H318  
Acute toxicity (inhalation), Hazard Category 2 – H330

**Warning H statements:**

**H225** – Highly flammable liquid and vapour.  
**H290** – May be corrosive to metals.  
**H302** – Harmful if swallowed.  
**H314** – Causes severe skin burns and eye damage.  
**H318** – Causes serious eye damage.  
**H330** – Fatal if inhaled.

- 2.2. Label elements:

Chemical name: Isobutyryl chloride  
CAS number: 79-30-1  
EC number: 201-194-1



**Warning H statements:**

- H225** – Highly flammable liquid and vapour.
- H290** – May be corrosive to metals.
- H302** – Harmful if swallowed.
- H314** – Causes severe skin burns and eye damage.
- H330** – Fatal if inhaled.

**Precautionary P statements:**

- P210** – Keep away from sparks, open flame, heat and other ignition sources. No smoking.
- P260** – Do not breathe vapours/spray.
- P280** – Wear protective gloves/protective clothing/eye protection/face protection.
- P284** - [In case of inadequate ventilation] wear respiratory protection.
- P301 + P330 + P331** – IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353** – IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P304 + P340** – IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
- P305 + P351 + P338 + P310** – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
- P405** – Store locked up.
- P501** – Dispose of contents/container as waste according to the local regulations.

2.3. Other hazards:

No other known specific hazards for human or environment.  
The substance does not meet the criteria for PBT or vPvB substances.

**SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

3.1. Substances:

IUPAC name: 2-methylpropanoyl chloride  
Chemical name: Isobutyryl chloride  
CAS number: 79-30-1  
EC number: 201-194-1  
Index number: 607-140-00-7  
Formula: (CH<sub>3</sub>)<sub>2</sub>CHCOCl  
Molar mass: 106.55 g/mol  
Purity: 100 %

**SECTION 4: FIRST AID MEASURES**

4.1. Description of first aid measures:

General advice: First aid personnel should pay attention to their own safety. If the patient is likely to become unconscious, place and transport in stable sideways position (recovery position). Immediately remove contaminated clothing.

IN CASE OF INGESTION:

Measures:

- Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

IN CASE OF INHALATION:

Measures:

- Keep patient calm, remove to fresh air, seek medical attention.
- Immediately inhale corticosteroid dose aerosol.

IN CASE OF SKIN CONTACT:

Measures:

- Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

IN CASE OF EYE CONTACT:

Measures:

- Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.
- 4.2. Most important symptoms and effects, both acute and delayed:  
Harmful if swallowed. Fatal if inhaled. Causes severe skin burns and eye damage.
- 4.3. Indication of any immediate medical attention and special treatment needed:  
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

#### **SECTION 5: FIREFIGHTING MEASURES**

- 5.1. Appropriate extinguishing media:
  - 5.1.1. Suitable extinguishing media:  
Dry powder, foam extinguisher, CO<sub>2</sub>.
  - 5.1.2. Unsuitable extinguishing media:  
Water.
- 5.2. Special hazards arising from the substance or mixture:  
Highly flammable liquid and vapour.  
In case of fire hydrogen chloride may be formed. The inhalation of the combustion products can have serious adverse effects on health.
- 5.3. Advice for fire fighters:  
Wear full protective clothing and self-contained breathing apparatus.  
Dispose of fire debris and contaminated extinguishing water in accordance with official regulations.

#### **SECTION 6: ACCIDENTAL RELEASE MEASURES**

- 6.1. Personal precautions, protective equipment and emergency procedures:
  - 6.1.1. For non-emergency personnel:  
Keep unprotected people away, allow only well-trained experts wearing suitable protective clothing to abide in the field of accident.
  - 6.1.2. For emergency responders:  
Breathing protection required.  
Avoid contact with skin, eyes and clothing.  
Avoid breathing vapours/spray.  
Wear appropriate personal protective equipment.  
Remove the ignition sources.  
Ensure adequate ventilation.
- 6.2. Environmental precautions:  
Do not empty into drains.
- 6.3. Methods and material for containment and cleaning up:  
For large amounts: Pump off product.  
For residues: Pick up with suitable absorbent material (e.g. sand, sawdust, general-purpose binder, kieselguhr). Dispose of absorbed material in accordance with regulations.
- 6.4. Reference to other sections:  
For further and detailed information see section 8 and 13.

#### **SECTION 7: HANDLING AND STORAGE**

- 7.1. Precautions for safe handling:  
Observe conventional hygiene precautions.  
Protect against moisture.  
Avoid contact with skin, eyes and clothing.  
Avoid breathing vapours/spray.  
Wear appropriate personal protective equipment.  
Observe the pertinent regulations on industrial safety and basic hygiene rules.  
Wash hands and face thoroughly after handling.  
Wash contaminated clothing before reuse.  
Technical measures:  
Ensure thorough ventilation of stores and work areas.  
Precautions against fire and explosion:  
Keep away from sparks, open flame, heat and other ignition sources. No smoking.  
Prevent electrostatic charge - sources of ignition should be kept well clear - fire extinguishers should be kept handy.
- 7.2. Conditions for safe storage, including any incompatibilities:  
Technical measures and storage condition:  
Keep container tightly closed in a cool, well-ventilated place. Protect against heat.  
Storage duration: 6 months.  
Keep in original, closed and appropriately labelled container.  
The place of storage has to be properly ventilated and cleanable.  
Store in cool and dry place.

Incompatible materials: see section 10.5.  
Packaging material: no data available.

- 7.3. Specific end use(s):  
No specific instructions available.

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters:

Occupational exposure limit values:  
The substance is not regulated with exposure limit value.

#### **PNEC values:**

Freshwater: 0.051 mg/l  
Freshwater – intermittent release: 0.512 mg/l  
Marine water: 0.005 mg/l  
STP: 39 mg/l  
Freshwater sediment: 0.415 mg/kg sediment dry weight  
Marine water sediment: 0.042 mg/kg sediment dry weight  
Soil: 0.053 mg/kg soil dry weight

| DNEL              |                   | Routes of exposure: | Exposure frequency:                        | Remarks:          |
|-------------------|-------------------|---------------------|--|-------------------|
| Worker            | Consumer          |                     |  |                   |
| no data available | no data available | Dermal              | Short term (acute)<br>Long term (repeated) | no data available |
| no data available | no data available | Inhalative          | Short term (acute)<br>Long term (repeated) | no data available |
| no data available | no data available | Oral                | Short term (acute)<br>Long term (repeated) | no data available |

### 8.2. Exposure controls:

In case of a hazardous material with no controlled concentration limit it is the employer's duty to keep concentration levels down to a minimum achievable by existing scientific and technological means, where the hazardous substance poses no harm to workers.

#### 8.2.1. Appropriate engineering controls:

In pursuance of work is proper foresight needed to avoid spilling onto clothes and floors and to avoid contact with eyes and skin. Ensure adequate ventilation.

#### 8.2.2. Individual protection measures, such as personal protective equipment:

Avoid contact with the skin, eyes and clothing. Avoid inhalation of vapour.

1. Eye/face protection: Use adequate, tightly fitting protective glasses and face shield (EN 166).
2. Skin protection:

##### a. Hand protection: Use appropriate protective gloves (EN 374).

The specifications are based on tests, literature data and information of glove manufacturers or are derived from similar substances by analogy. Due to many conditions (e.g. temperature) it must be considered, that the practical usage of a chemical-protective glove in practice may be much shorter than the permeation time determined through testing. Manufacturer's directions for use should be observed because of great diversity of types.

Suitable materials for short-term contact and/or splashes:

- > 30 min. permeation time,  
Nitrile rubber (NBR) - 0,4 mm thickness  
Butyl rubber (BR) - 0,7 mm thickness  
Fluoroelastomer (FKM) - 0,7 mm thickness

##### b. Other: use appropriate protective clothes. Body protection should be selected depending on the activity and the possible exposure, e.g. apron, protective boots, chemical protective clothes (according to EN 14605 in case of splashes or EN ISO 13982 in case of dust).

3. Respiratory protection: in case of inadequate ventilation, use appropriate respiratory protective device. Wear self-contained breathing apparatus.
4. Thermal hazard: none known.

#### 8.2.3. Environmental exposure controls:

No specific prescription.

**The requirements detailed in Section 8 assume skilled work under normal conditions and usage of the product for appropriate aims. If conditions differ from normal or work is carried out under extreme conditions an expert's advice should be sought out before deciding upon further protective measures.**

9.1. Information on basic physical and chemical properties:

| Parameter  |   | Test method:  | Remarks: |
|--|---|---|----------|
| 1. <b>Appearance:</b>                                    | colourless to yellowish liquid          | 20 °C, 1013 hPa   |          |
| 2. <b>Odour:</b>   | pungent                                 |   |          |
| 3. <b>Odour threshold:</b>                               | no data available*                      |   |          |
| 4. <b>pH value:</b>                                      | no data available*                      |   |          |
| 5. <b>Melting point/freezing point:</b>                  | -90 °C                                  |   |          |
| 6. <b>Initial boiling point/boiling range:</b>           | 93.09 °C                                | 1013,25 hPa   |          |
| 7. <b>Flash point:</b>                                   | 1 °C                                    | 1013,25 hPa   |          |
| 8. <b>Evaporation rate:</b>                              | no data available*                      |   |          |
| 9. <b>Flammability (solid, gas):</b>                     | no data available*                      |   |          |
| 10. <b>Upper/lower flammability or explosive limits:</b> | no data available*                      |   |          |
| 11. <b>Vapour pressure:</b>                              | 50 hPa<br>70 hPa<br>200 hPa<br>56.7 hPa | 17.42 °C, measured<br>23.85 °C, measured<br>47.12 °C, measured<br>20 °C, intrapolated |          |
| 12. <b>Vapour density:</b>                               | no data available*                      |   |          |
| 13. <b>Relative density:</b>                             | no data available*                      |   |          |
| 14. <b>Solubility(ies):</b>                              | no data available*                      |   |          |
| 15. <b>Partition coefficient: n-octanol/water:</b>       | log Pow = 0.44                          |   |          |
| 16. <b>Auto-ignition temperature:</b>                    | 325 °C                                  | 1013 hPa  |          |
| 17. <b>Decomposition temperature:</b>                    | no data available*                      |   |          |
| 18. <b>Viscosity:</b>                                    | no data available*                      |   |          |
| 19. <b>Explosive properties:</b>                         | no data available*                      |   |          |
| 20. <b>Oxidizing properties:</b>                         | no oxidising properties                 |   |          |

9.2. Other information:

Density: 1.009 g/cm<sup>3</sup> at 20 °C; 0.984 g/cm<sup>3</sup> at 40 °C

Dissociation constant:

No.: #1

pKa: 4.72

Temperature: 25 °C

Note: macroscopic pKa

\*: The manufacturer did not carry out any studies on this parameter for the product or the results of the examinations were not available at the time the data sheet was issued.

**SECTION 10: STABILITY AND REACTIVITY**

10.1. Reactivity:

Strong exotherm reactions with the following materials: water, alkalis, amines, amine-compounds.

May be corrosive to metals.

10.2. Chemical stability:

Stable within normal temperature and general work conditions.

10.3. Possibility of hazardous reactions:

Strong exotherm reactions with the following materials: water, alkalis, amines, amine-compounds.

10.4. Conditions to avoid:

Keep away from sparks, open flame, heat and other ignition sources. No smoking.

10.5. Incompatible materials:

Water, alkalis, amines, amine-compounds.

10.6. Hazardous decomposition products:

Hydrogen chloride.

**SECTION 11: TOXICOLOGICAL INFORMATION**

11.1. Information on toxicological effects:

Acute toxicity: Harmful if swallowed. Fatal if inhaled.

Skin corrosion/irritation: Causes severe burns.

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

Respiratory or skin sensitisation: Based on the information available, the criteria for classification is not fulfilled.

Germ cell mutagenicity: Based on the information available, the criteria for classification is not fulfilled.

Carcinogenicity: Based on the information available, the criteria for classification is not fulfilled.

Reproductive toxicity: Based on the information available, the criteria for classification is not fulfilled.  
STOT-single exposure: Based on the information available, the criteria for classification is not fulfilled.  
STOT-repeated exposure: Based on the information available, the criteria for classification is not fulfilled.  
Aspiration hazard: Based on the information available, the criteria for classification is not fulfilled.

- 11.1.1. For substances subject to registration, brief summaries of the information derived from the test conducted:  
No data available.
- 11.1.2. Relevant toxicological properties of the hazardous substances:  
Acute toxicity:  
LD50 (oral, rat, male/female): ca. 1000 mg/kg bw  
LD50 (dermal, rat, male/female): > 2000 mg/kg  
LD50 (intraperitoneal, mouse, male/female): 0.8 – 1 mg/kg bw  
LC50 (inhalation, rat, male/female): 0.47 – 1.95 mg/l air/4h  
Skin irritation/corrosion:  
Highly corrosive.  
Eye irritation:  
Highly corrosive.  
Genetic toxicity:  
In vitro gene mutation study in bacteria:  
Species: S. typhimurium TA 1535, TA 1537, TA 98, TA 100 and E. coli WP2  
Metabolic activation: with and without  
Genotoxicity: negative  
Cytotoxicity: yes
- 11.1.3. Information on likely routes of exposure:  
Ingestion, inhalation, skin contact, eye contact.
- 11.1.4. Symptoms related to the physical, chemical and toxicological characteristics:  
No data available.
- 11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:  
Harmful if swallowed.  
Fatal if inhaled.  
Causes severe skin burns and eye damage.
- 11.1.6. Interactive effects:  
No data available.
- 11.1.7. Absence of specific data:  
No information.
- 11.1.8. Other information:  
No data available.

## SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:  
- Short-term toxicity to fish:  
LC50 (Leuciscus idus): 146.6 mg/l/96h (geometrical mean, not neutralised samples)  
- Short-term toxicity to aquatic invertebrates:  
EC50 (Daphnia magna): 51.25 mg/l/48h  
- Toxicity to aquatic algae and cyanobacteria:  
EC50 (Desmodesmus subspicatus): 45.1 mg/l/72h  
- Toxicity to microorganisms:  
EC50: 57 mg/l/17h (not neutralised)
- 12.2. Persistence and degradability:  
Biodegradation: ca. 80 % / 28 days
- 12.3. Bioaccumulation potential:  
Bioconcentration factor (BCF):  
3.16 l/kg (log BCF: 0.50)  
1.69 l/kg (log BAF: 0.23)
- 12.4. Mobility in soil:  
Adsorption coefficient:  
Koc: 45 (25 °C, pH 4, 5, 7, 9)  
log Koc: 1.65 (pH 4, 5, 7, 9)  
Henry's Law constant:  
H: 0.09 Pa m<sup>3</sup>/mol (25 °C)  
H: 0 atm m<sup>3</sup>/mol (25 °C)  
H: 1.130 mol/atm kg (25 °C)  
Distribution:  
Air (%): 4.21  
Water (%): 95.7

Soil (%): 0.066  
Sediment (%): 0.067  
Susp. sediment (%): 0  
Biota (%): 0  
Aerosol (%): 0

- 12.5. Results of PBT and vPvB assessment:  
The substance does not meet the criteria for PBT or vPvB substances.
- 12.6. Other adverse effects:  
No data available.

### SECTION 13: DISPOSAL CONSIDERATIONS

- 13.1. Waste treatment methods:  
Disposal according to the local regulations.
- 13.1.1. Information regarding the disposal of the product:  
Incinerate in suitable incineration plant, observing local authority regulations.  
No appropriate EWC code can be given for the substance, since the identification of the proper code can be done with the method of use defined by the user of the substance. The European waste code number has to be determined after a discussion with a specialist dealing with waste disposal.
- 13.1.2. Information regarding the disposal of the packaging:  
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.
- 13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:  
None known.
- 13.1.4. Sewage disposal:  
None known.
- 13.1.5. Special precautions for any recommended waste treatment:  
No data available.

### SECTION 14: TRANSPORT INFORMATION

- 14.1. UN Number:  
UN 2395
- 14.2. UN proper shipping name:  
ISOBUTYRYL CHLORIDE
- 14.3. Transport hazard class(es):  
Class: 3  
Classification code: FC  
Labels: 3+8
- 14.4. Packaging group:  
II
- 14.5. Environmental hazard:  
No relevant information available.
- 14.6. Special precautions for user:  
Transport within user's premises: always transport in closed containers that are upright and secure.  
Ensure that the personnel performing the transportation of the product is aware with the measures necessary in case of an accident or a spillage.
- 14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code:  
Not applicable.

### SECTION 15: REGULATORY INFORMATION

- 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture:  
REGULATION (EC) No 1907/2006 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC  
  
REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006  
  
COMMISSION REGULATION (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)
- 15.2. Chemical safety assessment: no information available.

## SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Regulation (EU) 2015/830 (Section 1-16).

The classification of the substance has been changed compared to the previous version.

Full text of the abbreviations in the safety data sheet:

DNEL: Derived no effect level. PNEC: Predicted no effect concentration. CMR effects: carcinogenicity, mutagenicity and toxicity for reproduction. PBT: Persistent, bioaccumulative and toxic. vPvB: very persistent and very bioaccumulative. n.d.: not defined. n.a.: not applicable. VOC: volatile organic compound.

Data sources:

Previous version of the safety data sheet (10. 08. 2017, version 1),  
data provided by the manufacturer (REACH registration dossier).

Relevant H-Phrases (number and full text) of Section 2:

**H225** – Highly flammable liquid and vapour.

**H290** – May be corrosive to metals.

**H302** – Harmful if swallowed.

**H314** – Causes severe skin burns and eye damage.

**H318** – Causes serious eye damage.

**H330** – Fatal if inhaled.

Training instructions: no data available.

This safety data sheet had been prepared on the basis of information provided by the manufacturer/supplier and conform to the relevant regulations.

The information, data and recommendations contained herein are provided in good faith, obtained from reliable sources and believed to be true and accurate as of the date issued; however, no representation is made as to the comprehensiveness of the information. The SDS shall be used only as a guide for handling the product; in the course of handling and using the product other considerations may arise or be required.

Users are cautioned to determine the appropriateness and applicability of the above information to their particular circumstances and purposes and assume all risk associated with the use of this product. It is the responsibility of the user to fully comply with local, national and international regulations concerning the use of this product.

Safety data sheet was prepared by: ToxInfo Kft.

Professional help regarding the explanation of the safety data sheet:  
+36 70 335 8480; [info@msds-europe.com](mailto:info@msds-europe.com)