

SAFETY DATA SHEET

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

- 1.1. Product identifier:**
ISONONANOYL CHLORIDE

IUPAC name: Isononanoyl chloride
CAS number: 36727-29-4
EU number: 253-168-4
Registration number: 01-2119459348-28-0003; Transported isolated intermediate.
- 1.2. Relevant identified uses of the substance and uses advised against:**
Organic synthesis intermediate for industrial use.
- 1.3. Details of the supplier of the safety data sheet:**
Framochem French-Hungarian Fine Chemicals Ltd.
3700 Kazincbarcika,
Szerviz str. 5., POB. 504
Telephone: +36 (48) 311-991
Fax: +36 (48) 512-162
- 1.3.1. Responsible person:** -
E-mail: 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):
Met. Corr. 1 - H290
Acute Tox. 4 (oral) - H302
Skin Corr. 1A - H314
Skin Sens. 1 - H317
Acute Tox. 1 (inhalative) - H330
Aquatic Chronic 3 - H412

Warning H statements:
H290 – May be corrosive to metals.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H317 – May cause an allergic skin reaction.
H330 – Fatal if inhaled.
H412 – Harmful to aquatic life with long lasting effects.
- 2.2. Label elements:**

IUPAC name: Isononanoyl chloride
CAS number: 36727-29-4
EU number: 253-168-4

GHS06



GHS05



DANGER

Warning H statements:

- H290** – May be corrosive to metals.
H302 – Harmful if swallowed.
H314 – Causes severe skin burns and eye damage.
H317 – May cause an allergic skin reaction.
H330 – Fatal if inhaled.
H412 – Harmful to aquatic life with long lasting effects.

Precautionary P statements:

- P273** – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P284 – Wear respiratory protection.
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 or doctor/physician.

2.3. Other hazards:

Information concerning specific hazards for human and environment: see Section 11.

The substance does not meet the criteria for PBT or vPvB substances according to Annex XIII of Regulation 1907/2006/EC.

Endocrine disrupting property: Not an endocrine disruptor.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance:

IUPAC name: Isononanoyl chloride
CAS number: 36727-29-4
EU number: 253-168-4
Formula: $C_9H_{17}ClO$
Molar weight: 176.5 g/mol
Purity: > 99.5 %

SECTION 4: FIRST AID MEASURES

4.1. Description of first aid measures:

GENERAL INFORMATION: Obtain immediate medical attention and show him the label.

IN CASE OF INGESTION:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital.
- Show the label or the safety data sheet to the physician.

IN CASE OF INHALATION:

Measures:

- Obtain immediate medical help and/or take the victim to the hospital.
- In case of inhalation take the victim into fresh air and take him into comfortable position (recovery position is recommended) and protect him from hypothermia.

IN CASE OF SKIN CONTACT:

Measures:

- Remove the contaminated clothes and shoes.
- The affected skin surface should be flushed/cleaned with plenty of water and soap for at least 15 minutes, if possible, under a shower.
- Obtain medical help.

IN CASE OF EYE CONTACT:

Measures:

- In case of contact with eyes flush immediately with plenty of flowing water for 15 minutes holding eyelids apart.
- Obtain immediate ophthalmologist help.

4.2. Most important symptoms and effects, both acute and delayed:

See section 11 for information on health effects and symptoms.

4.3. Indication of any immediate medical attention and special treatment needed:

No special treatment needed, treat symptomatically.

SECTION 5: FIREFIGHTING MEASURES

5.1. Extinguishing media:

5.1.1. Suitable extinguishing media:

Carbon dioxide, dry powder, foam.

5.1.2. Unsuitable extinguishing media:

Do not use water!

5.2. Special hazards arising from the substance or mixture:

During the thermal decomposition of the product, toxic gases/vapours may be formed, containing hydrochloric acid, isononaoyl acid, carbon dioxide, carbon monoxide.

5.3. Advise for fire fighters:

Wear appropriate full protective clothing and self-contained breathing apparatus (self-rescue breathing apparatus). These means can protect from the skin and eye contact and from the inhalation of the hazardous gases and smoke.

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:

Evacuate the unauthorized persons for the place of the accident.

Remove all ignition sources from the affected area.

Close the designated area.

Ensure adequate ventilation.

Wear appropriate protective equipment.

6.2. Environmental precautions:

Dispose of spillage and waste (product/packaging) in accordance with all applicable environmental laws. Do not allow the substance and the resulting waste to enter sewers/soil/surface or ground water. Notify the respective authorities in accordance with local law in the case of environmental pollution immediately.

6.3. Methods and material for containment and cleaning up:

Collect the spilled material with inert, non-combustible, mineral absorbent (sand, earth, perlite), then place into a suitable, closed, properly labelled chemical waste container for disposal. During disposal wear suitable personal protective equipment.

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.

Avoid contact of the product with skin, eyes and clothing.

The inhalation exposure should be avoided.

Do not eat, drink and smoke in the workplace.

Use adequate personal protective equipment (see section 8).

The contaminated clothes should be removed immediately and should be cleaned before re-use.

After the handling of the product and before breaks or before eating wash your hands, after the work hours thorough washing (warm water hand washing and showering with soap) is required.

Technical measures:

Ensure adequate ventilation (general ventilation and local suction).

Precautions against fire and explosion:

No special measures required.

7.2. Conditions for safe storage, including any incompatibilities:

Technical measures and storage condition:

Keep in original, closed and appropriately labelled container.

The place of storage must be properly ventilated and cleanable.

Store in cool and dry place.

Follow all instructions on the label.

Keep away from direct sunshine and other heat- and explosion sources.

Keep away from moisture.

Incompatible materials: see Section 10.5.

Packaging material: the product must be stored in properly coated (lined with polyethylene) and tightly sealed metal drum. The use of packaging material made of metals without polyethylene line is forbidden!

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.

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

| PNEC | | | Exposure frequency: | Remarks: |
|-------------------|-------------------|-------------------|---|-------------------|
| Water | Soil | Air | | |
| no data available | no data available | no data available | Short term (single use) Long term (continuous) | no data available |
| no data available | no data available | no data available | Short term (single use) Long term (continuous) | no data available |
| no data available | no data available | no data available | Short term (single use) Long term (continuous) | 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, especially in closed areas.

Do not eat or smoke during the processing.

Do not inhale the vapours.

Keep away from skin and eyes.

Wash thoroughly after the work hours.

In the vicinity of the workplace safety shower and eye wash fountain has to be installed.

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

1. Eye/face protection: use appropriate protective glasses/protective mask (EN 166).

2. Skin protection:

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

b. Other: use appropriate, acid resistant protective clothes (EN ISO 6529).

3. Respiratory protection: use adequate respirator (for organic vapours) according to EN 136, EN 141.

4. Thermal hazard: None known.

8.2.3. Environmental exposure controls:

No special measures required.

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.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties:

| Parameter | Value / Test method / Remarks |
|---|--|
| 1. Appearance: | colourless, clear liquid |
| 2. Odour: | pungent |
| 3. Odour threshold: | no data available |
| 4. pH value: | not applicable |
| 5. Melting point/ freezing point: | < - 50 °C |
| 6. Initial boiling point/boiling range: | 193 °C |
| 7. Flash point: | 74 °C |
| 8. Evaporation rate: | no data available |
| 9. Flammability (solid, gas): | no data available |
| 10. Upper/lower flammability or explosive limits: | no data available |
| 11. Vapour pressure: | 10 ² Pa (20 °C), 30 x 10 ² Pa (80 °C) |
| 12. Vapour density: | 12.1 |
| 13. Relative density: | no data available |
| 14. Solubility(ies): | In case of contact with water, decomposes. Soluble in common organic solvents. |
| 15. Partition coefficient: n-octanol/water: | not applicable |
| 16. Self-ignition temperature: | 380°C |
| 17. Degradation temperature: | 160°C |
| 18. Viscosity: | no data available |
| 19. Explosive properties: | no data available |
| 20. Oxidizing properties: | no data available |

9.2. Other information:

Density (20 °C): 0,937 g/cm³

Degradation temperature: 160 °C (ATD), decomposition energy: 130 J/g

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

Stable at room temperature and general conditions of work.

Decomposition energy: 631 J/g.

In case of contact with water, decomposes

10.2. Chemical stability:

Stable at room temperature. Above 160°C it decomposes.

10.3. Possibility of hazardous reactions:

Reacts with water.

See Section 10.5.

10.4. Conditions to avoid:

Store away from heat and moisture.

10.5. Incompatible materials:

Bases, water, amines, and alcohol.

10.6. Hazardous decomposition products:

In case of thermal decomposition: carbon dioxide, carbon monoxide and hydrogen chloride are formed.

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 sensitization: none known.

Germ cell mutagenicity: none known.

Carcinogenicity: none known.

Reproductive toxicity: none known.

STOT-single exposure: none known.

STOT-repeated exposure: none known.

Aspiration hazard: none known.

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):

LD₅₀ (oral, rat): 1700 mg/kg.

LC₅₀ (inhalative, rat): 0.1 mg/l/4h

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:

Acute effects:

Irritates the eyes and the mucous membranes.

Ingestion: corrosive substance.

Inhalation: very toxic if inhaled. The inhalation of the vapours may cause mucous membrane irritation. May cause burning in the respiratory tract. Skin contact: corrosive substance, may cause burns.

Eye contact: corrosive substance, may cause burns.

Irritation: irritates the eyes and the mucous membranes.

CMR effects:

Carcinogenicity: the substance is not listed in the official list of carcinogenic substances, no data on carcinogenic effects.

11.1.5. Delayed and immediate effects as well as chronic effects from short and long-term exposure:

Harmful if swallowed.

Causes severe skin burns and eye damage.

Fatal if inhaled.

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:

Toxicity (LC₅₀):

LC₅₀ (fish): 100 – 1000 mg/l/96h

12.2. Persistence and degradability

During the hydrolysis hydrochloric acid and isononanoic acid is formed, which is readily biodegradable (up to 65 %).

12.3. Bioaccumulation potential:

No data available.

12.4. Mobility in soil

Decomposes with hydrolysis while isononanoic acid is formed which is weakly soluble in water, the acid floats on the surface of the water.

Water solubility: 0.3 w %

12.5. Results of PBT and vPvB assessment

This substance does not meet the criteria of PBT or vPvB.

12.6. Other adverse effects:

Water Hazard Class (WHC): 1 (Slightly hazardous to water)

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:

The product can be incinerated in a chemical incinerator equipped with an afterburner and scrubber.

European Waste Code:

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:

Dispose of according to the relevant regulations. The contaminated packaging should be cleaned with alkaline solution.

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:

ADR/RID: UN2927 IMDG: UN2927 IATA: UN2927

14.2. UN proper shipping name:

ADR/RID: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Isononanoyl chloride)

IMDG: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Isononanoyl chloride)

IATA: TOXIC LIQUID, CORROSIVE, ORGANIC, N.O.S. (Isononanoyl chloride)

14.3. Transport hazard class(es):

ADR/RID: 6.1 TC1 IMDG: 6.1 IATA: 6.1

14.4. Packaging group:

ADR/RID: I IMDG: I IATA: I

14.5. Environmental hazard:

ADR/RID: no IMDG: no IATA: none

14.6. Special precautions for user:

No relevant information available.

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 (EC) No 1999/45 and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive (EEC) No 76/769 and Commission Directives (EEC) No 91/155, (EEC) No 93/67, (EC) No 93/105 and (EC) No 2000/21

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 (EEC) No 67/548 and (EC) No 1999/45, and amending Regulation (EC) No 1907/2006

COMMISSION REGULATION (EU) 2020/878 of 18 June 2020 amending Annex II to Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

15.2. Chemical safety assessment: No information.

SECTION 16: OTHER INFORMATION

Information regarding the revision of the safety data sheet:

The safety data sheet has been revised according to Regulation (EU) 2020/878 (Section 1-16).

The hazard classification of the substance did not change compared to the previous version.

This safety data sheet supersedes all previous versions according to Annex II of Regulation (EC) No 1907/2006.

Literature references / data sources:

Previous version of the safety data sheet (20. 01. 2017, version CLP_E).

Relevant hazard statements (code and full text) of Sections 2 and 3:

- H290** – May be corrosive to metals.
- H302** – Harmful if swallowed.
- H314** – Causes severe skin burns and eye damage.
- H317** – May cause an allergic skin reaction.
- H330** – Fatal if inhaled.
- H412** – Harmful to aquatic life with long lasting effects.

Training advice: No data available.

Full text of the abbreviations in the safety data sheet:

ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways.
ADR: Agreement concerning the International Carriage of Dangerous Goods by Road.
ATE: Acute Toxicity Estimate.
AOX: Adsorbable organic halides.
BCF: Bioconcentration factor.
BOD: Biological Oxygen Demand.
CAS number: Chemical Abstract Service number.
CLP: Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures.
CMR effects: Carcinogenic, mutagenic, reprotoxic effects.
COD: Chemical Oxygen Demand.
CSA: Chemical Safety Assessment.
CSR: Chemical Safety Report.
DNEL: Derived-No-Effect-Level.
ECHA: European Chemical Agency.
EC: European Community.
EC number: EINECS and ELINCS numbers (see also EINECS and ELINCS).
EEC: European Economic Community.
EEA: European Economic Area (EU + Iceland, Liechtenstein and Norway).
EINECS: European Inventory of Existing Commercial Chemical Substances.
ELINCS: European List of Notified Chemical Substances.
EN: European Norm.
EU: European Union.
EWC: European Waste Catalogue (replaced by LoW – see below).
GHS: Globally Harmonized System of Classification and Labelling of Chemicals.
IATA: International Air Transport Association.
ICAO-TI: Technical Instructions for the Safe Transport of Dangerous Goods by Air.
IMDG: International Maritime Dangerous Goods.
IMO: International Maritime Organization.
IMSBC: International Maritime Solid Bulk Cargoes.
IUCLID: International Uniform Chemical Information Database.
IUPAC: International Union of Pure and Applied Chemistry.
Kow: n-Octanol - Water Partition Coefficient.
LC50: Lethal concentration resulting in 50 % mortality.
LD50: Lethal dose resulting in 50 % mortality (median lethal dose).
LoW: List of Waste.
LOEC: Lowest Observed Effect Concentration.
LOEL: Lowest Observed Effect Level.
NOEC: No Observed Effect Concentration.
NOEL: No Observed Effect Level.
NOAEC: No Observed Adverse Effect Concentration.
NOAEL: No Observed Adverse Effect Level.
OECD: Organization for Economic Cooperation and Development.
OSHA: Occupational Safety and Health Administration.
PBT: Persistent, Bioaccumulative and Toxic.
PNEC: Predicted No Effect Concentration.
QSAR: Quantitative Structure Activity Relationship.
REACH: Regulation 1907/2006/EC concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals.
RID: Regulations Concerning the International Transport of Dangerous Goods by Rail.
SCBA: Self Contained Breathing Apparatus.

SDS: Safety Data Sheet.

STOT: Specific Target Organ Toxicity.

SVHC: Substances of Very High Concern.

UN: United Nations.

UVCB: Chemical Substances of Unknown or Variable Composition, Complex Reaction Products and Biological Materials.

VOC: Volatile Organic Compound.

vPvB: very Persistent and very Bioaccumulative.

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.