

SAFETY DATA SHEET

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

1.1. Product identifier:

2-Methylbutyryl chloride

Chemical name: 2-methylbutanoil chloride

CAS number: 57526-28-0

EC number: 260-787-3

1.2. Relevant identified uses of the substance and uses advised against:

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

Tel: (48) 311-991

Fax: (48) 512-162

1.3.1. Responsible person:

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E-mail:

info@framochem.hu

1.4. Emergency telephone number:

Public Toxicological Health Service (ETTSZ)

1097 Budapest, Albert Flórián út 2-6.

Tel.: +36 80 201 199 (0-24, free of charge – only from Hungary)

Tel.: +36 1 476 6464 (0-24, normal charge – also from foreign countries)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance:

Classification according to Regulation (EC) No 1272/2008 (CLP):

Flammable liquids, Hazard Category 2 – H225

Skin corrosion/irritation, Hazard Category 1B – H314

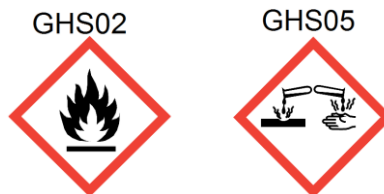
Hazard statements:

H225 – Highly flammable liquid and vapour.

H314 – Causes severe skin burns and eye damage.

2.2. **Label elements:**

Chemical name: 2-Methylbutyryl chloride
CAS number: 57526-28-0
EC number: 260-787-3



DANGER

Hazard statements:

H225 – Highly flammable liquid and vapour.
H314 – Causes severe skin burns and eye damage.

Precautionary statements:

P210 – Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P280 – Wear protective gloves/protective clothing/eye protection/face 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/ doctor.

2.3. **Other hazards:**

Will form explosive mixtures with air.
Results of PBT and vPvB assessment: The substance does not meet the criteria for PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006.
Endocrine disrupting property: Based on available data, it is not an endocrine disruptor.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. **Substance:**

Chemical name: 2-methylbutyryl chloride
IUPAC name: 2-methylbutanoyl chloride
CAS number: 57526-28-0
EC number: 260-787-3
Molecular formula: C₅H₉ClO
Purity: ≥98 %

SECTION 4: FIRST AID MEASURES

4.1. **Description of first aid measures:**

General information: Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

Protection of first-aiders: Ensure that the medical personnel is aware of the substance involved. Take precautions to protect yourself and prevent spreading the contamination.

INGESTION:

Measures:

- Do not induce vomiting.
- Do not give anything by mouth to an unconscious person.
- Immediately call a physician or a Poison Control Centre.

INHALATION:

Measures:

- Take the victim into fresh air.
- If breathing is difficult, give oxygen.
- Do not use mouth-to-mouth resuscitation if the victim ingested or inhaled the substance.
- If not breathing, provide artificial respiration and immediately call a physician.

SKIN CONTACT:

Measures:

- Immediately remove the contaminated clothes and shoes.
- Wash the skin with plenty of water (for 15 minutes).
- If feeling uncomfortable, obtain medical help

EYE CONTACT:

Measures:

- In case of contact with eyes flush with water holding eyelids apart (for at least 15 minutes).
- Immediately call a doctor.

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

Substance accumulation in the human body may occur and may cause some concern following repeated or long-term occupational exposure.

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

No special treatment needed; treat symptomatically.

Symptoms may be delayed.

SECTION 5: FIREFIGHTING MEASURES

5.1. **Extinguishing media:**

5.1.1. **Suitable extinguishing media:**

Dry chemical, carbon dioxide or alcohol-resistant foam.

5.1.2. **Unsuitable extinguishing media:**

Do not use full water jet, because it can disperse and spread fire.

5.2. **Special hazards arising from the substance or mixture:**

Highly flammable liquid and vapour.

Will form explosive mixtures with air. Fire exposed containers may vent content through pressure relief valves thereby increasing the intensity of fire and/or vapour concentration. Vapours may travel to ignition sources causing flashback.

Fire may produce irritating, toxic or corrosive gases.

Containers may explode when heated.

5.3. **Advice for firefighters:**

Wear full protective clothing and self-contained breathing apparatus.

Fight fire from a safe distance with adequate cover.

Prevent extinguishing water from contaminating surface waters or the ground water.

SECTION 6: ACCIDENTAL RELEASE MEASURES

- 6.1. Personal precautions, protective equipment and emergency procedures:**
- 6.1.1. **For non-emergency personnel:**
Allow only well-trained experts wearing suitable protective clothing to abide in the field of the accident.
- 6.1.2. **For emergency responders:**
Avoid breathing vapours, mist, gas or spray.
Avoid contact with skin and eyes.
Vapours can accumulate in low areas.
Emergency personnel should wear positive pressure demand, self-contained breathing apparatus. Wear anti-static and protective clothing. Wear chemically impermeable gloves.
Ensure adequate ventilation.
Remove sources of ignition.
Evacuate personnel to safe area.
Keep people away and upwind of spill/leak.
- 6.2. Environmental precautions:**
Dispose of the spillage and the resulting waste according to the applicable environmental regulations. Do not allow the product 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 product with dry sand and inert absorbent, then place into a suitable, closed, properly labelled chemical waste container for removal/disposal. In case of large amount of spillage, contain the spill by bounding.
Remove sources of ignition.
Use explosion- and spark-proof equipment.
- 6.4. Reference to other sections:**
For further and detailed information see Sections 8 and 13.

SECTION 7: HANDLING AND STORAGE

- 7.1. Precautions for safe handling:**
Observe conventional hygiene precautions.
Avoid breathing vapours, mist, gas or spray.
Avoid contact with skin and eyes.
Wash thoroughly after handling.
Wash contaminated clothing before reuse.
Technical measures:
Use only outdoors or in a well-ventilated area.
Ensure adequate ventilation.
Precautions against fire and explosion:
Use only non-sparking tools.
To prevent fire caused by electrostatic discharge, equipment on all metal parts should be grounded.
Use explosion-proof electrical/ventilating/lighting equipment.
Keep away from heat/sparks/open flames/hot surfaces.
Take action to prevent static discharges.
- 7.2. Conditions for safe storage, including any incompatibilities:**
Technical measures and storage condition:
Keep containers tightly closed in a dry, cool and well-ventilated place.
Protect against moisture.
Keep away from heat/sparks/open flames/hot surfaces.
Store away from incompatible materials and food containers.
Keep only in original packaging.
Incompatible materials: See Section 10.5
Packaging material: No special prescriptions.
- 7.3. Specific end use(s):**
No specific instructions available.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters:

Occupational exposure limit values (Commission Directive (EC) No 2000/39 of 8 June 2000):
 The substance is not regulated with exposure limit value.

DNEL values		Oral exposure		Dermal exposure		Inhalative exposure	
		Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)	Short term (acute)	Long term (chronic)
Consumer	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data
Worker	Local	no data	no data	no data	no data	no data	no data
	Systemic	no data	no data	no data	no data	no data	no data

PNEC values		
Compartment	Value	Note(s)
Freshwater	no data	no notes
Marine water	no data	no notes
Freshwater sediment	no data	no notes
Marine water sediment	no data	no notes
Sewage Treatment Plant (STP)	no data	no notes
Intermittent release	no data	no notes
Secondary poisoning	no data	no notes
Soil	no data	no notes

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 leaking onto clothes and floors and to avoid contact with eyes and skin. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation. Use explosion-proof electrical/ventilating/lighting equipment. Set up emergency exit and necessary risk-elimination area.

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

1. **Eye/face protection:** Use appropriate, tightly fitting protective glasses (EN 166).
2. **Skin protection:**
 - a. **Hand protection:** Use appropriate protective gloves (e.g. butyl rubber) (EN 374).
 - b. **Other:** Use appropriate, fire/flame resistant/retardant protective clothing and antistatic boots.
3. **Respiratory protection:** If exposure limits are exceeded or if irritation or other symptoms are experienced, use full-face respirator with multi-purpose combination or type AXBEK (EN 14387) respirator cartridges.
4. **Thermal hazards:** No thermal hazards 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 is necessary 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. Physical state	liquid
2. Colour	colourless to light yellow
3. Odour, odour threshold	no data*
4. Melting point/freezing point	no data*
5. Boiling point or initial boiling point and boiling range	117 °C
6. Flammability	Highly flammable
7. Lower and upper explosion limit	no data*
8. Flash point	20 °C (closed cup)
9. Auto-ignition temperature	306 °C
10. Decomposition temperature	no data*
11. pH	no data*
12. Kinematic viscosity	no data*
13. Solubility in water in other solvents	no data* no data*
14. Partition coefficient n-octanol/water (log value)	no data*
15. Vapour pressure	20,3 hPa (20°C)
16. Density and/or relative density	0.972 g/cm ³ (20°C)
17. Relative vapour density	1 (air = 1)
18. Particle characteristics	not applicable

9.2. Other information:

9.2.1. Information with regard to physical hazard classes:

No further data available or not applicable for the product.

9.2.2. Other safety characteristics:

No other characteristics available.

*: The manufacturer did not carry out any tests on this parameter for the product or the results of the tests are not available at the time of publication of the data sheet, or the property is not applicable for the product.

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity:

Contact with incompatible materials can cause decomposition or other chemical reactions.

10.2. Chemical stability:

Stable under proper operational and storage conditions.

10.3. Possibility of hazardous reactions:

No hazardous reactions known.

10.4. Conditions to avoid:

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Take action to prevent static discharges.

Protect against moisture.

10.5. Incompatible materials:

Alcohols, bases, amines, water.

10.6. Hazardous decomposition products:

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: TOXICOLOGICAL INFORMATION

- 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008:**
Acute toxicity: No data available
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.
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.
STOT-single exposure: Based on available data, the classification criteria are not met.
STOT-repeated exposure: Based on available data, the classification criteria are not met.
Aspiration hazard: Based on available data, the classification criteria are not met.
- 11.1.1. Summaries of the information derived from the test conducted:**
No data available.
- 11.1.2. Relevant toxicological properties:**
Carcinogenicity: Not listed by IARC or NTP.
- 11.1.3. Information on likely routes of exposure:**
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:**
Causes severe skin burns and eye damage.
Causes serious eye damage.
- 11.1.6. Interactive effects:**
No data available.
- 11.1.7. Absence of specific data:**
No information.
- 11.2. Information on other hazards:**
Endocrine disrupting properties:
Endocrine disrupting property: Based on available data, it is not an endocrine disruptor.
Other information:
No data available.


SECTION 12: ECOLOGICAL INFORMATION

- 12.1. Toxicity:**
The substance is not classified as hazardous for the environment.
- 12.2. Persistence and degradability:**
No data available.
- 12.3. Bioaccumulative potential:**
No data available.
- 12.4. Mobility in soil:**
No data available.
- 12.5. Results of PBT and vPvB assessment:**
The substance does not meet the criteria for PBT and vPvB according to Annex XIII of Regulation (EC) No 1907/2006.
- 12.6. Endocrine disrupting properties:**
Endocrine disrupting property: Based on available data, it is not an endocrine disruptor.
- 12.7. 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:**
Dispose of in accordance with applicable regulations.
Recommendation: incineration.
List of Waste Code:
No waste disposal key according to the List of Waste Code (LoW code) can be determined for this product, as only the purpose of application defined by the user enables an allocation. The LoW code number has to be determined after a discussion with a waste disposal specialist.
- 13.1.2. Information regarding the disposal of the packaging:**
Dispose of in accordance with applicable regulations.
Containers may still present chemical hazard when empty. Keep away from heat and ignition sources.
Return to the supplier for recycling if possible.
- 13.1.3. Physical/chemical properties that may affect waste treatment options shall be specified:**
No data available.
- 13.1.4. Sewage disposal:**
No data available.
- 13.1.5. Special precautions for any recommended waste treatment:**
No data available.

SECTION 14: TRANSPORT INFORMATION

- 14.1. UN number or ID number:**
UN 2920
- 14.2. UN proper shipping name:**
CORROSIVE LIQUID, FLAMMABLE, N.O.S. (2-Methylbutyryl chloride)
- 14.3. Transport hazard class(es):**
Class: 8
Labels: 8 + 3
- 
- 14.4. Packing group:**
II
- 14.5. Environmental hazards:**
Marine Pollutant: No.
- 14.6. Special precautions for user:**
No relevant information available.
- 14.7. Maritime transport in bulk according to IMO instruments:**
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: No information.

Literature references / data sources:

Safety data sheet issued by the manufacturer (2022. 09. 30, CLP_A HU)

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

H225 – Highly flammable liquid and vapour.

H314 – Causes severe skin burns and eye damage.

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.