

Material Safety Data Sheet
according to Regulation (EC) No. 1907/2006

ISOBUTYL CHLOROFORMATE

Revision date 23.05.2025
Version 1
Replaces version from -

1. Identification of the substance/Mixture and of the company/undertaking

1.1 Product identifier

Product name Isobutyl chloroformate
CAS-No. 543-27-1
EC-No. 208-840-1

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

Identified uses Laboratory chemicals, Manufacture of substances.

1.3 Details of the supplier of the safety data sheet

Name Valsynthese SA
Factory address Valsynthese SA
Fabrikstrasse 48
PO Box 636
3900 Brig / Switzerland
Office address Valsynthese SA
Societe Suisse des Explosifs Group
PO Box 636
3900 Brig / Switzerland

Information Departement This number is available only during office hours.
Phone +41 27 922 71 11
E-Mail (Responsible person):
msds@sse-group.com

1.4 Emergency Phone Number +41 27 922 71 11 (only during office hours) or
Toxicological Information Centre in Switzerland: Tel. 145
or +41 (0) 44 251 51 51

2. Hazards Identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Flammable liquids (Category 3), H226
Acute toxicity, Oral (Category 4), H302
Acute toxicity, Inhalation (Category 2), H330
Skin corrosion (Sub-category 1B), H314
Serious eye damage (Category 1), H318

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Hazard pictogram(s)



Signal word

Danger

Hazard statement(s)

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H330	Fatal if inhaled.

Precautionary statement(s)

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.
P301+P312	IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
P304+P340+P310	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

Supplemental Hazard Statements

none

2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

Lachrymator.



3. Composition / Information on ingredients

3.1 Substance

Product name	Isobutyl chloroformate
Molecular formula	C ₅ H ₉ ClO ₂
Molecular weight	136,58 g/mol
CAS-No.	543-27-1
EC-No.	208-840-1

Hazardous ingredients according to Regulation (EC) No 1272/2008

Component		Classification	Concentration
Isobutyl chloroformate			
CAS-No.	543-27-1	Flam. Liq. 3; Acute Tox. 4 Acute Tox. 2;	<=100%
EC-No.	208-840-1	Skin Corr. 1B; Eye Dam. 1; H226, H302, H330, H314, H318	

For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16.

4. First-aid measures

4.1 Description of first aid measures

General advice	First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.
If swallowed	After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.
If inhaled	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.
In case of skin contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
In case of eye contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

4.3 Indication of any immediate medical attention and special treatment needed

No data available



5. Fire fighting measures

5.1 Extinguishing media

Suitable extinguishing media Carbon dioxide (CO₂), Dry powder.

Unsuitable extinguishing media Foam, Water.

5.2 Special hazards arising from the substance or mixture

Carbon oxides

Hydrogen chloride gas

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at elevated temperatures.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for fire fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

5.4 Additional information

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and material for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

For further and detailed information see section 8 and 13.



7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store under inert gas. Vent periodically. Moisture sensitive.

Storage class

Storage class (TRGS 510): 3: Flammable liquids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

8. Exposure controls / Personal protection

8.1 Control parameters

Ingredients with workplace control parameters

8.2 Exposure controls

Personal protective equipment

Eye/face protection	Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles.
Skin protection	<p>This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).</p> <p>Splash contact Material: butyl-rubber Minimum layer thickness: 0,7 mm Break through time: 30 min Material tested: Butoject® (KCL 898)</p>
Body Protection	Flame retardant antistatic protective clothing.



Respiratory protection	Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds. The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.
Environmental exposure controls	Do not let product enter drains. Risk of explosion.

9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Physical state	clear, liquid
Color	light brown
Odor	No data available
pH value	No data available
Melting point/freezing point	No data available
Initial boiling point and boiling range	128 - 129 °C at 1.013 hPa
Flash point	36 °C - closed cup
Evaporation rate	No data available
Flammability (solid, gas)	No data available
Upper/lower flammability or explosive limits	No data available
Vapour pressure	95,9 hPa at 55 °C 22,8 hPa at 20 °C
Density	1,053 g/cm ³ at 25 °C - lit.
Relative density	No data available
Water solubility	No data available
Partition coefficient: n-octanol/water	log Pow: 1,996
Auto-ignition temperature	No data available
Decomposition temperature	No data available
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
Particle characteristics	No data available
Explosive properties	No data available
Oxidizing properties	No data available

9.2 Other information

No data available



10. Stability and reactivity

10.1 Reactivity

Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions

Violent reactions possible with:

Water

Oxidizing agents

Bases

Amines

Alcohols

acids

10.4 Conditions to avoid

Avoid moisture, Heating.

10.5 Incompatible materials

No data available

10.6 Hazardous decomposition products

In the event of fire: see section 5

11. Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Acute toxicity estimate Oral - 500,1 mg/kg
(Expert judgment)

Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

LC50 Inhalation - 4 h - 1,81 mg/l - vapor

(Expert judgment)

Acute toxicity estimate Inhalation - 1,81 mg/l - vapor

(ATE value derived from LD50/LC50 value)

Dermal: No data available

Skin corrosion/irritation

Remarks: Causes skin burns.

Skin - Rabbit

Result: Causes burns.

(OECD Test Guideline 404)

Remarks: The value is given in analogy to the following substances: ethyl chloroformate



Serious eye damage/eye irritation	Eyes - Rabbit (OECD Test Guideline 405) Remarks: Risk of blindness! The value is given in analogy to the following substances: ethyl chloroformate
Respiratory or skin sensitisation	No data available
Germ cell mutagenicity	No data available
Carcinogenicity	No data available
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available

11.2 Additional information

Endocrine disrupting properties

Product (Assessment)

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea.

12. Ecological information

12.1 Toxicity

No data available

12.2 Persistence and degradability

No data available

12.3 Bioaccumulation potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.



12.6 Endocrine disrupting properties

Product (Assessment)

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

12.7 Other adverse effects

No data available

13. Disposal considerations

13.1 Waste treatment methods

Product

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

14. Transport information

14.1 UN Number

ADR/RID: 3489

IMDG: 3489

IATA: 3489

14.2 UN proper shipping name

ADR/RID: TOXIC BY
INHALATION LIQUID,
FLAMMABLE, CORROSIVE,
N.O.S. (isobutyl
chloroformate)

IMDG: TOXIC BY
INHALATION LIQUID,
FLAMMABLE, CORROSIVE,
N.O.S. (isobutyl
chloroformate)

IATA: Toxic by inhalation
liquid, flammable, corrosive,
n.o.s. (isobutyl
chloroformate)
Passenger Aircraft: Not
permitted for transport
Cargo Aircraft: Not
permitted for transport

14.3 Transport hazard class(es)

ADR/RID: 6.1 (3, 8)

IMDG: 6.1 (3, 8)

IATA: 6.1 (3)(8)

14.4 Packing group

ADR/RID: I

IMDG: I

IATA: -

14.5 Environmental hazards

ADR/RID: no

IMDG Marine pollutant: no

IATA: no

14.6 Special precautions for user

Tunnel restriction code : (C/D)

Further information

No data available



15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

This material safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006.

National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: FLAMMABLE LIQUIDS

Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

16. Other information

16.1 Information regarding the revision of the safety data sheet

Version 1 based on the classification according to Regulations (EC) No 1272/2008, (EU) 878/2020 and (EU) 707/2023.

16.2 Full text of H-Statements referred to under sections 2 and 3

H226	Flammable liquid and vapor.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H330	Flammable liquid and vapor.

16.3 Additional information

The information contained herein is in conformity with EU Directive EC 1907/2006 and EC 1272/2008, and is believed to be accurate and represents the best information currently available to us on the date of publication. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall Valsynthese SA be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Valsynthese SA has been advised of the possibility of such damages.

