


SAFETY DATA SHEET

ETHYL CHLOROFORMATE

SECTION 1: Identification of the substance/mixture and of the company/undertaking Trade name:

1.1 Product identifier:	
CAS Number:	541-41-3
EC number:	208-838-7
1.2 SYNONYMS:	<ul style="list-style-type: none"> • Ethyl carbonochloridate • Ethyl chloroformate ester • Chloroformic acid ethyl ester • Ethyl ester of chloroformic acid

SECTION 2: Hazards identification:

2.1 Classification of the substance or mixture:	Classification according to Regulation (EC) No 1272/2008 The substance is classified according to the CLP regulation.
2.2 Label elements:	<p>Labelling according to Regulation (EC) No 1272/2008</p> <p>Flammable Liquid (Category 2)</p> <p>Acute toxicity, oral (Category 3)</p> <p>Acute toxicity, inhalation (Category 2)</p> <p>Skin corrosion/irritation (Category 1B)</p> <p>Eye damage/irritation (Category 1)</p> <p>Respiratory sensitization (Category 1)</p> <p>Skin sensitization (Category 1)</p> <p>Hazardous to the aquatic environment (Category 1)</p>
Hazard Pictograms:	
Signal Word:	Danger

Hazard statements:	<p>H225: Highly flammable liquid and vapor.</p> <p>H290: May be corrosive to metals.</p> <p>H302: Harmful if swallowed.</p> <p>H314: Causes severe skin burns and eye damage.</p> <p>H330: Fatal if inhaled.</p>
Precautionary Statements:	<p>P210: Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P301 + P312: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell.</p> <p>P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.</p> <p>P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.</p> <p>P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</p> <p>P391: Collect spillage.</p> <p>P405: Store locked up.</p> <p>P501: Dispose of contents/container to hazardous or special waste collection point.</p>

2.3 Other hazards:	
Inhalation:	can cause respiratory irritation, sensitization, and severe damage to the respiratory system, potentially leading to long-term health effects.
Ingestion:	can cause severe toxicity, leading to damage to the gastrointestinal tract, nausea, vomiting, and potentially life-threatening effects.
Skin Contact:	can cause severe chemical burns, irritation, and allergic skin reactions.
Eye contact:	can cause severe eye damage, including burns, irritation, and potential loss of vision.
Chronic Exposure:	may lead to long-term respiratory issues, skin sensitization, and increased risk of developing allergies or other persistent health problems due to repeated or prolonged contact.
Aggravation of pre-existing conditions:	Aggravation of pre-existing conditions such as respiratory disorders, skin conditions, or eye sensitivities may occur, potentially worsening symptoms or increasing the risk of severe reactions.

SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation:	Substances
CAS No:	Description: 541-41-3 ETHYL CHLOROFORMATE
Identification number(s):	EC number: 208-838-7

SECTION 4: First aid measures

4.1 Description of first aid measures	
--	--

General information:	
After inhalation:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
After skin contact:	Remove contaminated clothing. Wash with soap and water. Consult a physician.
After eye contact:	Immediately flush eyes with plenty of water for at least 15 minutes. consult a physician.
After swallowing:	Rinse mouth with water. Immediately after ingestion. Never give anything by mouth to an unconscious person. Do not induce vomiting. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed:	The most important symptoms of acute exposure include respiratory irritation, skin and eye irritation, nausea, and vomiting, with delayed effects potentially involving chronic respiratory issues or skin sensitization.
4.3 Indication of any immediate medical attention and special treatment needed:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media:	Carbon dioxide. Alcohol-resistant foam. Avoid using water.
5.2 Special hazards arising from the substance or mixture:	Phosgene
5.3 Advice for firefighters:	Wear fully protective suit, safety glasses and respiratory device. Remove them into safety.
5.4 further information:	no data available

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures:	Use personal protective equipment. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Avoid dust accumulation. Seek medical attention.
6.2 Environmental precautions:	Do not enter this chemical into drains.
6.3 Methods and material for containment and cleaning up:	Take up spill into absorbent material, e.g.: sand, earth, vermiculite, powdered limestone. Scoop absorbed substance into closing containers. Spill must not return in its original container. Wash clothing and equipment after handling.

SECTION 7: Handling and storage

7.1 Precautions for safe handling:	For use in are with adequate ventilation. Empty containers pose a fire risk, evaporate the residue under a fume hood. Ground all equipment containing material Do not use in confined spaces. Electrostatic discharge protection. Minimize dust generation and accumulation. Avoid ingestion and inhalation.
7.2 Conditions for safe storage, including any incompatibilities:	Store in original containers. Keep containers securely sealed Store in a cool, dry, well-ventilated area. Store away from incompatible materials and foodstuff containers.

	Protect containers against physical damage and check regularly for leaks. Store in a dry and dark area. Do not handle in flammable atmospheres.
Requirements to be met by storerooms and receptacles:	Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
7.3 Specific end uses:	no data available

SECTION 8: Exposure controls/personal protection

8.1 Control parameters	
Additional information about design of technical facilities:	A system of local and general exhaust is recommended.
8.2 Exposure controls	
Appropriate engineering controls	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Personal protective equipment:	Dust respirator, protective masks, wearing anti chemical gloves, rubber gloves, etc.
General protective and hygienic measures:	Eyes, body and hand protection, maintain indoor air unobstructed. Wear protective equipment.
	Respiratory protection: Required.
Protection of hands:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws. Wash and dry hands.

	Eye protection: Required
Protection of Body:	Complete suit protecting against chemicals, Flame retardant antistatic protective clothing.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties	
General Information	
Appearance: Form:	Clear liquid
Colour:	Colorless
Odour:	Pungent, chlorofomic acid like
pH-value:	Not applicable
Melting point/Melting range:	-60°C
Boiling point/Boiling range:	101°C
Flammability (solid, gaseous):	Highly flammable
Ignition temperature:	425°C
Decomposition temperature:	100°C
Self-igniting:	None
Flash point:	12°C
Danger of explosion:	None
Explosion limits: Lower:	2.4%
Explosion limits: Upper:	11.5%
Vapour pressure:	9.4 kPa (at 20°C)
Density at 20 °C:	1.163 g/cm ³
Relative density:	1.163
Vapour density:	4.15
Evaporation rate:	Not determined
Solubility in / Miscibility with- water at 20 °C:	Not soluble
Partition coefficient:(n- octanol/water)	1.8
Viscosity:	0.74 mPa·s (at 20°C)

SECTION 10: Stability and reactivity

10.1 Reactivity	Stable at storage conditions.
10.2 Chemical stability	This chemical is stable under storage conditions.
10.3 Possibility of hazardous reactions	Can react violently with water to form phosgene and ethanol.
10.4 Conditions to avoid	Water, moisture, heat and open flames,
10.5 Incompatible materials	Water, amines, alcohols, bases, strong oxidizing agents.
10.6 Hazardous decomposition products	Phosgene, carbon monoxide, chlorine gas.

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute Toxicity:	LD50 (Oral, Rat): 500 mg/kg LD50 (Dermal, Rabbit): 2.280 mg/kg LC50 (Inhalation Rat): 0.51 mg/l (4hr)
Skin corrosion/Irritation:	Can cause serious skin corrosion
Serious eye damage/irritation:	Can cause serious eye damage.
Respiratory damage/irritation:	No data available
Ingestion:	No data available
Germ cell mutagenicity:	No data available
Carcinogenicity:	No data available
Reproductive toxicity:	No data available
Specific target organ toxicity - single exposure:	No data available
Specific target organ toxicity - repeated exposure:	No data available
Aspiration hazard:	No data available
Signs and Symptoms of Exposure:	Refer section 2.3
11.2 Additional toxicological information	
Biodegradability:	Not Biodegradable

SECTION 12: Ecological information

12.1 Toxicity Aquatic toxicity:	LC50(fish): 0.5-2.5 mg/l EC50(daphnia): no data available ErC50(algae): no data available
12.2 Persistence and degradability:	Not Biodegradable
12.3 Bioaccumulative potential:	Low bioaccumulative
12.4 Mobility in soil:	High mobility
12.5 Other adverse effects:	No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods	
Uncleaned packaging Recommendation:	dispose of in accordance with local hazardous waste regulations
Recommended cleansing agents:	sodium bicarbonate or sodium carbonate. Avoid using water, strong acids or oxidizing agents.

SECTION 14: Transport information

14.1 UN-Number · ADR, ADN, IMDG, IATA:	1182
14.2 UN proper shipping name · ADR, ADN, IMDG, IATA:	ETHYL CHLOROFORMATE
14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA :	6.1
14.4 Packing group · ADR, IMDG, IATA:	1
14.5 Environmental hazards:	Yes harmful for aquatic life.
14.6 Special precautions for user:	Handle responsibly.

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture Directive 2012/18/EU	Directive 2012/18/EU, under that this substance is classified in listed substance as flammable and toxic substance.
Named dangerous substances:	This substance is listed in the annex 1 to the directive.
15.2 Chemical safety assessment:	Chemical assessment has been carried out under REACH regulation.

SECTION 16: Other information

The data included was derived from international authoritative database and provided by the enterprise. Other information was based on the present state of our knowledge. We try to ensure the correctness of all information. However, due to the diversity of information sources and the limitations of our knowledge, this document is only for user's reference. Users should make their independent judgment of suitability of this information for their particular purposes. We do not assume responsibility for loss, damage or expense arising out of or in any way connected with the handling, storage, use or disposal of the product.

YOUR CHEMICAL PARTNER