

SAFETY DATA SHEET

ETHYL FORMATE

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

1.1 Product identifier:	
CAS Number:	109-94-4
EC number:	203-721-0
1.2 SYNONYMS:	- Formic acid ethyl ester - Ethyl methanoate

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:	Labelling according to Regulation (EC) No 1272/2008 Flammable liquids, (Category 1) Acute toxicity, oral (Category 4) Acute toxicity, inhalation (Category 4) Eye irritation, (Category 2) Specific target organ toxicity - single exposure, Respiratory system (Category 3)
Hazard Pictograms:	 
Signal Word:	Danger
Hazard statements:	H225: Highly flammable liquid and vapour. H302 + H332: Harmful if swallowed or if inhaled. H319: Causes serious eye irritation. H335: May cause respiratory irritation.
Precautionary Statements:	P261: Avoid breathing dust. P264: Wash skin thoroughly after handling. P280: Wear protective gloves/protective clothing/eye protection/face protection.

	P273: Avoid release to the environment. P303+P361+P353: IF ON SKIN (or hair): Remove/take off immediately all contaminated clothing. Rinse skin with water/shower. P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present and easy to do. Continue rinsing. P301+P312: IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell. P404: Store in a closed container. P501: Dispose of contents/container to an approved waste disposal plant.
2.3 Other hazards:	
Inhalation:	can cause respiratory irritation, dizziness, headache, nausea, and in high concentrations, central nervous system depression.
Ingestion:	can cause abdominal pain, nausea, vomiting, diarrhea, and in severe cases, systemic toxicity affecting the central nervous system.
Skin Contact:	can cause irritation, redness, and defatting of the skin, potentially leading to dryness or dermatitis with prolonged exposure.
Eye contact:	can cause severe irritation, redness, watering, and pain, and may result in temporary damage to the cornea.
Chronic Exposure:	can lead to persistent respiratory irritation, skin sensitization or dermatitis, and potential liver or kidney effects from prolonged or repeated contact.
Aggravation of pre-existing conditions:	may aggravate pre-existing respiratory conditions (like asthma)

	or bronchitis), skin disorders, or liver and kidney problems.
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SECTION 3: Composition/information on ingredients

3.1 Chemical characterisation:	Substances
CAS No:	Description: 109-94-4 ETHYL FORMATE
Identification number(s):	EC number: 203-721-0

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:	Acute and delayed exposure can cause respiratory irritation, dizziness, headache, nausea, vomiting, skin and eye irritation, and in severe or prolonged cases, central nervous system depression and organ toxicity.
4.3 Indication of any immediate medical attention and special treatment needed:	Treat symptomatically.

SECTION 5: Firefighting measures

5.1 Extinguishing media:	Water, Carbon dioxide dry powder, Alcohol-resistant foam.
5.2 Special hazards arising from the substance or mixture:	Carbon oxides, hydrogen fluoride.
5.3 Advice for firefighters:	Wear fully protective suit, safety glasses and respiratory device. Cool tanks/drums with water spray/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. Clean contaminated surfaces with an excess of water. 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.
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	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.
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:	liquid
Colour:	Colourless
Odour:	Pungent, fruity
pH-value:	7
Melting point/Melting range:	-83°C
Boiling point/Boiling range:	54°C
Flammability (solid, gaseous):	Highly Flammable
Ignition temperature:	485°C
Decomposition temperature:	Not determined
Self-igniting:	None
Flash point:	-19°C
Danger of explosion:	Yes
Explosion limits: Lower:	3.8%
Explosion limits: Upper:	16.9%
Vapour pressure:	100 mmHg at 20 °C
Density at 20 °C:	0.917 g/cm ³
Relative density:	0.917
Vapour density:	3.4
Evaporation rate:	Not determined
Solubility in / Miscibility with-water at 20 °C:	Slightly Soluble
Partition coefficient:(n-octanol/water)	1.3
Viscosity:	0.44 mPa.s at 20°C

SECTION 10: Stability and reactivity

10.1 Reactivity	No data available
10.2 Chemical stability	Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions	Can react violently with strong oxidizing agents.
10.4 Conditions to avoid	Heat, sparks, flames, air, water, moisture.
10.5 Incompatible materials	Strong oxidizing agents, strong acids and bases.
10.6 Hazardous decomposition products	Carbon oxides, hydrogen fluoride.

SECTION 11: Toxicological information

11.1 Information on toxicological effects	
Acute Toxicity:	LD50 (Oral, Rat): no data available LD50 (Dermal, Rabbit): no data available LC50 (Inhalation Rat): no data available
Skin corrosion/Irritation:	No data available
Serious eye damage/irritation:	Causes eye irritation
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:	May cause respiratory irritation
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:	Readily biodegradable

SECTION 12: Ecological information

12.1 Toxicity Aquatic toxicity:	LC50(fish): no data available EC50(daphnia): no data available EC50(algae): no data available
12.2 Persistence and degradability:	Readily 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:	Water, ethanol, sand.

SECTION 14: Transport information

14.1 UN-Number · ADR, ADN, IMDG, IATA:	1190
14.2 UN proper shipping name · ADR, ADN, IMDG, IATA:	ETHYL FORMATE
14.3 Transport hazard class(es) · ADR, ADN, IMDG, IATA :	3
14.4 Packing group · ADR, IMDG, IATA:	2
14.5 Environmental hazards:	None
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 substances as flammable liquids.
Named dangerous substances:	This substance is not listed in the annex 1 to the directive.
15.2 Chemical safety assessment:	Chemical assessment has not been carried out

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

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