

**Ethyl formate v.p.**

Revision: 23.05.2025

Product code: AC11.00492

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**SECTION 1: Identification of the substance/mixture and of the company/undertaking****1.1. Product identifier**

Ethyl formate v.p.

Substance name: ethyl formate  
CAS No: 109-94-4  
Index No: 607-015-00-7  
EC No: 203-721-0

**1.2. Relevant identified uses of the substance or mixture and uses advised against****Use of the substance/mixture**

Reagents and laboratory chemicals  
Only for laboratory and analysis purposes.

**Uses advised against**

Do not use for private purposes (household).

**1.3. Details of the supplier of the safety data sheet****Details of the supplier of the safety data sheet**

Company name: AnalytiChem Services, Unipessoal, Lda  
Street: Rua de Júlio Dinis 676 7º  
Place: N-4050-320 Porto  
Telephone: +351 226002917  
E-mail: info@analytichem.com  
Contact person: SDS service department  
E-mail: SDS@analytichem.com  
Internet: www.analytichem.com  
Responsible Department: SDS service department

**Supplier or manufacturer details**

Company name: AnalytiChem Belgium NV  
Street: Industriezone "De Arend" 2  
Place: B-8210 Zedelgem  
Telephone: +32 50 28 83 20  
E-mail: info.be@analytichem.com  
Contact person: SDS service department  
E-mail: SDS@analytichem.com  
Responsible Department: AnalytiChem:  
EU-Belgium: AnalytiChem Belgium, Industriezone "De Arend" 2, 8210 Zedelgem, Belgium, +32 50 28 83 20  
EU-Germany: AnalytiChem Germany, Stempelstrasse 6, 47167 Duisburg, Germany, +49 203 51 94 – 200  
EU-Netherlands: AnalytiChem Netherlands, Communicatieweg 7, 3641 SG Mijdrecht, The Netherlands, +31 297 286848  
UK: AnalytiChem UK, Unit 7 Launton Business Center, Murdock Road, Bicester, OX26 4XB, England, +44 1869 355 500  
USA: AnalytiChem USA, 227 China Road, Winslow, Maine, 04901, United States, +1 800-244-8378  
Canada: AnalytiChem Canada, 21800 Clark Graham Avenue, Baie d'Urfe, H9X 4B6, Canada, +1 514-457-0701  
Australia: ORE Research & Exploration Pty Ltd, 37A Hosie Street, Bayswater North, 3153, Australia, +61 3 9729 0333  
+44 20 3807 3798 (CHEMTREC)

**1.4. Emergency telephone number:**

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**Further Information**

No data available

**SECTION 2: Hazards identification****2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**

Flam. Liq. 2; H225  
Acute Tox. 4; H332  
Acute Tox. 4; H302  
Eye Irrit. 2; H319  
STOT SE 3; H335

Full text of hazard statements: see SECTION 16.

**2.2. Label elements****Regulation (EC) No 1272/2008****Signal word:** Danger**Pictograms:****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**

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.  
P233 Keep container tightly closed.  
P240 Ground and bond container and receiving equipment.  
P241 Use explosion-proof electrical/ventilating/lighting equipment.  
P242 Use non-sparking tools.  
P243 Take action to prevent static discharges.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.  
P264 Wash hands and face thoroughly after handling.  
P270 Do not eat, drink or smoke when using this product.  
P271 Use only outdoors or in a well-ventilated area.  
P280 Wear protective gloves/protective clothing and eye protection/face protection.  
P301+P312 IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.  
P330 Rinse mouth.  
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower.  
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.  
P312 Call a POISON CENTER/doctor if you feel unwell.  
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.  
P337+P313 If eye irritation persists: Get medical advice/attention.  
P233 Keep container tightly closed.  
P403+P235 Store in a well-ventilated place. Keep cool.

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P405 Store locked up.  
P501 Dispose of contents/container to an appropriate recycling or disposal facility.

**2.3. Other hazards**

No data available

**SECTION 3: Composition/information on ingredients****3.1. Substances**

Sum formula: C<sub>3</sub>H<sub>6</sub>O<sub>2</sub>  
Molecular weight: 74,08 g/mol

**Relevant ingredients**

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
109-94-4	ethyl formate			95 - < 100 %
	203-721-0	607-015-00-7		
	Flam. Liq. 2, Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2, STOT SE 3; H225 H332 H302 H319 H335			

Full text of H and EUH statements: see section 16.

**Specific Conc. Limits, M-factors and ATE**

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
109-94-4	203-721-0	ethyl formate	95 - < 100 %
		inhalation: ATE = 11 mg/l (vapours); inhalation: ATE = 1,5 mg/l (dusts or mists); dermal: LD50 = > 18300 mg/kg; oral: LD50 = 1850 mg/kg	

**Further Information**

No data available

**SECTION 4: First aid measures****4.1. Description of first aid measures****General information**

First aider: Pay attention to self-protection!

**After inhalation**

Provide fresh air.  
If breathing is irregular or stopped, administer artificial respiration.  
Call a physician immediately.

**After contact with skin**

Wash immediately with: Water  
Take off immediately all contaminated clothing and wash it before reuse.  
Call a physician immediately.

**After contact with eyes**

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist.  
Remove contact lenses, if present and easy to do. Continue rinsing.  
Protect uninjured eye.

**After ingestion**

If swallowed, immediately drink: Water  
Do NOT induce vomiting.  
Do not allow a neutralisation agent to be drunk.

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Call a physician immediately.

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

Irritant

Observe risk of aspiration if vomiting occurs.

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

No data available

**SECTION 5: Firefighting measures****5.1. Extinguishing media****Suitable extinguishing media**

Co-ordinate fire-fighting measures to the fire surroundings.

**Unsuitable extinguishing media**

Full water jet

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

Combustible liquids

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Hazardous combustion products

In case of fire may be liberated:

Carbon dioxide

Carbon monoxide

**5.3. Advice for firefighters**

Wear a self-contained breathing apparatus and chemical protective clothing.

**Additional information**

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

Move undamaged containers from immediate hazard area if it can be done safely.

Use water spray jet to protect personnel and to cool endangered containers.

Heating causes rise in pressure with risk of bursting.

**SECTION 6: Accidental release measures****6.1. Personal precautions, protective equipment and emergency procedures****General advice**

Vapours can form explosive mixtures with air.

Do not breathe dust/fume/gas/mist/vapours/spray.

**For non-emergency personnel**

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

To follow: Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

**For emergency responders**

Precautionary statements For emergency responders : Personal protection equipment: see section 8

**6.2. Environmental precautions**

Do not allow to enter into surface water or drains.

Explosion risk.

**6.3. Methods and material for containment and cleaning up****For containment**

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

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Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

Collect in closed and suitable containers for disposal.

**For cleaning up**

Clean contaminated articles and floor according to the environmental legislation.

**Other information**

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**6.4. Reference to other sections**

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

**SECTION 7: Handling and storage****7.1. Precautions for safe handling****Advice on safe handling**

If handled uncovered, arrangements with local exhaust ventilation have to be used.

Read label before use. Handle and open container with care.

When using do not eat, drink, smoke, sniff. Keep container tightly closed.

Use personal protection equipment. Use extractor hood (laboratory).

Do not breathe dust/fume/gas/mist/vapours/spray. Provide adequate ventilation.

**Advice on protection against fire and explosion**

Take precautionary measures against static discharges.

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

This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).

**Advice on general occupational hygiene**

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink.

The choice of body protection depends on the concentration and quantity of hazardous substances. The chemical resistance of protective agents must be clarified with their suppliers.

**Further information on handling**

Take off immediately all contaminated clothing and wash it before reuse.

Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. If handled uncovered, arrangements with local exhaust ventilation have to be used.

**7.2. Conditions for safe storage, including any incompatibilities****Requirements for storage rooms and vessels**

Keep container tightly closed.

Protect against: Radiant heat.

**Hints on joint storage**

National regulations

**Further information on storage conditions**

Store in a dry place.

Store in a well-ventilated place.

**7.3. Specific end use(s)**

The product is intended for research, analysis and scientific education.

**SECTION 8: Exposure controls/personal protection**

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**8.1. Control parameters****Exposure limits (EH40)**

CAS No	Substance	ppm	mg/m <sup>3</sup>	fibres/ml	Category	Origin
109-94-4	Ethyl formate	100	308		TWA (8 h)	WEL
		150	462		STEL (15 min)	WEL

**Additional advice on limit values**

Observe in addition any national regulations!

**8.2. Exposure controls****Appropriate engineering controls**

Provide adequate ventilation as well as local exhaust at critical locations.

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

**Individual protection measures, such as personal protective equipment****Eye/face protection**

goggles

Face protection umbrella

**Hand protection**

Tested protective gloves must be worn

The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances.

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

**Skin protection**

Wear suitable protective clothing.

When handling with chemical substances, protective clothing with CE-labels including the four control digits must be worn.

Take off immediately all contaminated clothing and wash it before reuse.

**Respiratory protection**

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

**Thermal hazards**

No data available

**Environmental exposure controls**

Do not allow to enter into surface water or drains.

**SECTION 9: Physical and chemical properties****9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	light yellow
Odour threshold:	No data available

Melting point/freezing point:	-80 °C
Boiling point or initial boiling point and boiling range:	57 °C
Flammability:	No data available
Lower explosion limits:	2,7 vol. %
Upper explosion limits:	16,5 vol. %
Flash point:	-20 °C

**Test method**

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Auto-ignition temperature:	455 °C
Decomposition temperature:	No data available
pH-Value (at 25,6 °C):	1,96
Viscosity / kinematic: (at 20 °C)	11,16 mm <sup>2</sup> /s
Water solubility: (at 25 °C)	72 g/l OECD 105
Solubility in other solvents	
No data available	
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	1,5
Dispersion stability:	No data available
Vapour pressure:	266,64 hPa
Vapour pressure:	No data available
Density (at 20 °C):	0,921 g/cm <sup>3</sup>
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

**9.2. Other information****Information with regard to physical hazard classes**

Explosive properties

No data available

Sustained combustibility:

No data available

Self-ignition temperature

Solid:

No data available

Gas:

No data available

Oxidizing properties

No data available

**Other safety characteristics**

Evaporation rate:

No data available

Solvent separation test:

No data available

Solvent content:

No data available

Solid content:

No data available

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

No data available:

Viscosity / dynamic:

No data available

Flow time:

No data available

**Further Information**

No data available

**SECTION 10: Stability and reactivity****10.1. Reactivity**

Vapours can form explosive mixtures with air.

**10.2. Chemical stability**

Protect against: Radiant heat. Alkali (lye)

**10.3. Possibility of hazardous reactions**

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Oxidising agent  
Sodium  
Alkali metals  
Alkaline earth metals  
Acid

**10.4. Conditions to avoid**

Radiant heat.  
Humidity

**10.5. Incompatible materials**

No data available

**10.6. Hazardous decomposition products**

In case of fire may be liberated:  
SECTION 5: Firefighting measures

**Further information**

No data available

**SECTION 11: Toxicological information****11.1. Information on hazard classes****Acute toxicity**

Harmful if inhaled.  
Harmful if swallowed.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
109-94-4	ethyl formate				
	oral	LD50 1850 mg/kg	Rat	GESTIS	
	dermal	LD50 > 18300 mg/kg	Rabbit	GESTIS	
	inhalation vapour	ATE 11 mg/l			
	inhalation dust/mist	ATE 1,5 mg/l			

**Irritation and corrosivity**

Serious eye damage/eye irritation: Causes serious eye irritation.  
Skin corrosion/irritation: Based on available data, the classification criteria are not met.  
If swallowed danger of perforation of the esophagus and the stomach (strong corrosive effects).

**Sensitising effects**

Based on available data, the classification criteria are not met.

**Carcinogenic/mutagenic/toxic effects for reproduction**

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**

May cause respiratory irritation. (ethyl formate)

**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.



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**Information on likely routes of exposure**

No data available

**Specific effects in experiment on an animal**

No data available

**Additional information on tests**

No data available

**Practical experience**

No data available

**11.2. Information on other hazards****Endocrine disrupting properties**

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

**Other information**

No data available

**Further information**

No data available

**SECTION 12: Ecological information****12.1. Toxicity**

Based on available data, the classification criteria are not met.

**12.2. Persistence and degradability**

No data available

**12.3. Bioaccumulative potential**

No data available

**Partition coefficient n-octanol/water**

CAS No	Chemical name	Log Pow
109-94-4	ethyl formate	0,27

**12.4. Mobility in soil**

No data available

**12.5. Results of PBT and vPvB assessment**

This substance does not meet the PBT/vPvB criteria of UK REACH.

**12.6. Endocrine disrupting properties**

This substance does not have endocrine disrupting properties with respect to non-target organisms.

**12.7. Other adverse effects**

Discharge into the environment must be avoided.

**Further information**

Do not allow to enter into surface water or drains.

Explosion risk.

**SECTION 13: Disposal considerations****13.1. Waste treatment methods****Disposal recommendations**

Send to a physico-chemical treatment facility under observation of official regulations.

Do not allow to enter into surface water or drains.

**Contaminated packaging**

Handle contaminated packages in the same way as the substance itself.

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## SECTION 14: Transport information

## Land transport (ADR/RID)

<b>14.1. UN number or ID number:</b>	UN 1190
<b>14.2. UN proper shipping name:</b>	ETHYL FORMATE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L
Excepted quantity:	E2
Transport category:	2
Hazard No:	33
Tunnel restriction code:	D/E

## Inland waterways transport (ADN)

<b>14.1. UN number or ID number:</b>	UN 1190
<b>14.2. UN proper shipping name:</b>	ETHYL FORMATE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Classification code:	F1
Limited quantity:	1 L
Excepted quantity:	E2

## Marine transport (IMDG)

<b>14.1. UN number or ID number:</b>	UN 1190
<b>14.2. UN proper shipping name:</b>	ETHYL FORMATE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Special Provisions:	-
Limited quantity:	1 L
Excepted quantity:	E2
EmS:	F-E, S-D

## Air transport (ICAO-TI/IATA-DGR)

<b>14.1. UN number or ID number:</b>	UN 1190
<b>14.2. UN proper shipping name:</b>	ETHYL FORMATE
<b>14.3. Transport hazard class(es):</b>	3
<b>14.4. Packing group:</b>	II
Hazard label:	3
Limited quantity Passenger:	1 L
Passenger LQ:	Y341
Excepted quantity:	E2
IATA-packing instructions - Passenger:	353
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	364
IATA-max. quantity - Cargo:	60 L

**14.6. Special precautions for user**

No dangerous good in sense of this transport regulation.

**14.7. Maritime transport in bulk according to IMO instruments**

No dangerous good in sense of this transport regulation.

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**SECTION 15: Regulatory information****15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

Information according to Directive

P5c FLAMMABLE LIQUIDS

2012/18/EU (SEVESO III):

**Additional information**

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.

Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

**National regulatory information****SECTION 16: Other information****Abbreviations and acronyms**

Flam. Liq. 2: Flammable liquids, hazard category 2

Acute Tox. 4: Acute toxicity, hazard category 4

Eye Irrit. 2: Eye irritation, hazard category 2

STOT SE 3: Specific target organ toxicity - single exposure, hazard category 3

**Relevant H and EUH statements (number and full text)**

H225 Highly flammable liquid and vapour.

H302 Harmful if swallowed.

H302+H332 Harmful if swallowed or if inhaled.

H319 Causes serious eye irritation.

H332 Harmful if inhaled.

H335 May cause respiratory irritation.

**Further Information**

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.

The receiver of our product is singularly responsible for adhering to existing laws and regulations.