

SAFETY DATA SHEET

according to Regulation (EC) No 1907/2006 (REACH), Annex II, as amended by Regulation (EU) 2020/878

Ethyl acetate, bio-based (bio-ethyl acetate)

Version 1.0 · Date of issue: 02.10.2026



SECTION 1 Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Trade name	Bio-ethyl acetate
Substance name	Ethyl acetate (acetic acid ethyl ester)
Synonyms	Ethyl ethanoate, ETAC
CAS No.	141-78-6
EC No.	205-500-4
Index No.	607-022-00-5
REACH registration number	01-2119475103-46-XXXX (joint submission; full number available on request)
Molecular formula / molar mass	$C_4H_8O_2$ · 88.11 g/mol

1.2 Relevant identified uses of the substance and uses advised against

Identified uses	Solvent for paints, coatings, printing inks and adhesives; extraction and process solvent (pharmaceuticals, flavours); solvent in cosmetic formulations; laboratory chemical; formulation and repackaging.
Uses advised against	Not for supply to consumers (professional and industrial use only).
Product information	Bio-based: produced by esterification of bio-based ethanol with bio-based acetic acid; bio-based carbon content 100 % (C14 analysis). Chemically identical to fossil-based ethyl acetate; classification and properties are unchanged.

1.3 Details of the supplier of the safety data sheet

Supplier	PENPET GREEN Chemicals Distribution GmbH
Address	Merkurring 60-62, 22143 Hamburg, Germany
Telephone	+49 40 675799-50
E-mail (competent person)	sds@penpet.de
Internet	www.penpet.green

1.4 Emergency telephone number

Emergency number	Poison Information Centre North (GIZ-Nord), Göttingen, Germany: +49 551 19240 (24 h)
Company emergency	+49 40 675799-50 (Mon–Fri, 08:00–17:00 CET)

SECTION 2 Hazards identification

2.1 Classification of the substance or mixture

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

Hazard class / category	Hazard statement
Flam. Liq. 2	H225 – Highly flammable liquid and vapour.
Eye Irrit. 2	H319 – Causes serious eye irritation.
STOT SE 3	H336 – May cause drowsiness or dizziness.

Supplemental hazard information: EUH066 – Repeated exposure may cause skin dryness or cracking.

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2.2 Label elements



GHS02
Flame



GHS07
Exclamation mark

SIGNAL WORD: DANGER

Hazard statements

- H225** Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements

- P210** Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233 Keep container tightly closed.
P261 Avoid breathing vapours.
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.
P403+P235 Store in a well-ventilated place. Keep cool.

Supplemental hazard information

- EUH066** Repeated exposure may cause skin dryness or cracking.

Hazard-determining component

Ethyl acetate

2.3 Other hazards

Vapours are heavier than air and may spread along the ground; explosive vapour/air mixtures may form even at room temperature. The substance does not meet the criteria for PBT or vPvB in accordance with Annex XIII of REACH. It is not identified as having endocrine-disrupting properties (Art. 57(f) REACH, Regulation (EU) 2017/2100, 2018/605).

SECTION 3 Composition/information on ingredients

3.1 Substances

Substance name	CAS / EC / Index	Content	Classification (CLP)
Ethyl acetate	141-78-6 / 205-500-4 / 607-022-00-5	≥ 99.8 %	Flam. Liq. 2 (H225); Eye Irrit. 2 (H319); STOT SE 3 (H336); EUH066

No further ingredients relevant for classification. Specification limits: ethanol ≤ 0.04 %, water ≤ 0.03 %.

SECTION 4 First aid measures

4.1 Description of first aid measures

General information	Remove affected person from the danger area. Take off contaminated clothing immediately. First aiders: ensure self-protection.
After inhalation	Move to fresh air, keep at rest and warm. Seek medical advice in case of breathing difficulties or if feeling unwell. If unconscious, place in the recovery position.
After skin contact	Take off contaminated clothing. Wash skin with plenty of soap and water. Consult a doctor if skin irritation persists.

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After eye contact	Rinse immediately with running water for at least 15 minutes with eyelids held open. Remove contact lenses if easy to do. If eye irritation persists, consult an ophthalmologist.
After ingestion	Rinse mouth with water. Do not induce vomiting. Seek medical advice.

4.2 Most important symptoms and effects, both acute and delayed

Eye irritation (redness, watering, burning). Inhalation of high vapour concentrations has a narcotic effect: headache, dizziness, drowsiness, nausea; in extreme cases unconsciousness. Repeated or prolonged skin contact may defat the skin and cause dryness or cracking.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5 Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media	Alcohol-resistant foam, carbon dioxide (CO ₂), dry powder, water spray/fog.
Unsuitable extinguishing media	Full water jet.

5.2 Special hazards arising from the substance or mixture

Highly flammable. Vapours are heavier than air, spread along the ground and may form explosive mixtures with air; flashback over considerable distances possible. Combustion produces carbon monoxide and carbon dioxide. Containers may burst when heated.

5.3 Advice for firefighters

Wear self-contained breathing apparatus and chemical protective clothing. Cool endangered containers with water spray. Collect contaminated firefighting water separately; do not allow to enter drains.

SECTION 6 Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition; no smoking. Ensure adequate ventilation. Do not breathe vapours; avoid contact with eyes and skin. Wear personal protective equipment (see Section 8). Keep unprotected persons away.

6.2 Environmental precautions

Do not allow to enter drains, surface water or groundwater. Notify the competent authorities in case of water pollution.

6.3 Methods and material for containment and cleaning up

Absorb with inert liquid-binding material (sand, diatomite, universal binder) and collect in suitable, closable containers for disposal. Use non-sparking tools and explosion-proof equipment. Clean contaminated surfaces thoroughly.

6.4 Reference to other sections

Safe handling: Section 7. Personal protective equipment: Section 8. Disposal: Section 13.

SECTION 7 Handling and storage

7.1 Precautions for safe handling

Handle only in well-ventilated areas; avoid formation of vapours. Keep away from ignition sources; no smoking. Take precautionary measures against electrostatic discharge (earth equipment and containers, use conductive hoses). Use explosion-proof equipment and non-sparking tools. Avoid contact with eyes and skin. Do not eat, drink or smoke when using this product. Wash hands before breaks and at the end of work.

7.2 Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a cool, dry, well-ventilated place. Protect from heat and direct sunlight. Store separately from: oxidising agents, strong acids and bases, alkali metals. Suitable materials: stainless steel, carbon steel; plastics and seals only after compatibility testing.

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Storage class (TRGS 510, Germany)

3 – Flammable liquids

7.3 Specific end use(s)

No further information; see Section 1.2.

SECTION 8 Exposure controls/personal protection

8.1 Control parameters

Country / source	Limit value	Remark
Germany – TRGS 900 (AGW)	200 ml/m ³ (ppm) · 730 mg/m ³	Excursion factor 2 (I); Y
EU – indicative limit (IOELV), Directive (EU) 2017/164	8 h: 200 ppm · 734 mg/m ³ ; short-term: 400 ppm · 1,468 mg/m ³	–

DNEL (registrant)	Exposure	Value
Workers	Inhalation, long-term (systemic/local)	734 mg/m ³
Workers	Inhalation, short-term (systemic/local)	1,468 mg/m ³
Workers	Dermal, long-term (systemic)	63 mg/kg bw/day
General population	Inhalation, long-term / short-term	367 / 734 mg/m ³
General population	Dermal, long-term (systemic)	37 mg/kg bw/day
General population	Oral, long-term (systemic)	4.5 mg/kg bw/day

PNEC (registrant)	Value
Freshwater / marine water	0.24 mg/l / 0.024 mg/l
Intermittent release	1.65 mg/l
Sewage treatment plant	650 mg/l
Sediment freshwater / marine	1.15 / 0.115 mg/kg dw
Soil	0.148 mg/kg dw
Secondary poisoning (oral)	200 mg/kg food

8.2 Exposure controls

Engineering controls	Ensure good ventilation of the workplace, local exhaust ventilation where necessary; explosion-proof ventilation equipment. Provide an eye wash station.
Eye/face protection	Tightly fitting safety goggles with side shields (EN 166); additionally face shield where splashing is possible.
Hand protection	Chemical protective gloves to EN ISO 374 made of butyl rubber (0.5 mm; breakthrough time 1–2 h, maximum wearing time 1 h). Unsuitable: natural rubber, polychloroprene, nitrile rubber, PVC, fluoroelastomer. Observe the glove manufacturer's information.
Body protection	Antistatic, flame-retardant protective clothing; antistatic safety footwear (EN ISO 20345).
Respiratory protection	If the occupational exposure limit is exceeded or ventilation is insufficient: gas filter A (brown, EN 14387) – A1 up to 1,000 ml/m ³ , A2 up to 5,000 ml/m ³ , A3 up to 10,000 ml/m ³ .
Environmental exposure controls	Do not allow to enter the environment; see Sections 6 and 12.

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SECTION 9 Physical and chemical properties

9.1 Information on basic physical and chemical properties

Property	Value
Physical state	Liquid (20 °C, 1013 hPa)
Colour	Colourless, clear
Odour	Fruity, ether-like
Odour threshold	3.9–22 ppm
Melting point / freezing point	–83.6 °C
Boiling point	77.1 °C (1013 hPa)
Flammability	Highly flammable liquid (Flam. Liq. 2)
Lower / upper explosion limit	2.0 vol % (73 g/m ³) / 12.8 vol % (470 g/m ³)
Flash point	–4 °C (closed cup)
Auto-ignition temperature	470 °C
Decomposition temperature	Not determined; no decomposition up to the boiling point
pH	Not applicable (organic liquid)
Kinematic viscosity	0.51 mm ² /s (20 °C)
Solubility in water	80 g/l (25 °C)
Partition coefficient n-octanol/water (log K _{ow})	0.68 (25 °C)
Vapour pressure	98 hPa (20 °C); 122 hPa (25 °C)
Density	0.90 g/cm ³ (20 °C)
Relative vapour density	3.04 (air = 1; calculated from the molar mass)
Particle characteristics	Not applicable (liquid)

9.2 Other information

Explosive properties	Not explosive (no chemical groups associated with explosive properties); vapour/air mixtures may, however, be explosive.
Oxidising properties	None
Dynamic viscosity	0.45 mPa·s (20 °C)
Refractive index	n _D 20 max. 1.373 (specification)

SECTION 10 Stability and reactivity

10.1 Reactivity

Formation of explosive vapour/air mixtures. Slow hydrolysis to ethanol and acetic acid in the presence of water, accelerated by acids and bases.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Violent reactions with strong oxidising agents, strong bases and alkali metals possible.

10.4 Conditions to avoid

Heat, sparks, open flames, electrostatic discharge.

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10.5 Incompatible materials

Strong oxidising agents, strong acids and bases, alkali metals.

10.6 Hazardous decomposition products

In case of fire: carbon monoxide, carbon dioxide.

SECTION 11 Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Endpoint	Result / value
Acute toxicity, oral	LD50 rat: 5,620–10,200 mg/kg bw (several studies); LD50 rabbit: 4,934 mg/kg bw – not classified
Acute toxicity, dermal	LD50 rabbit: > 20,000 mg/kg bw – not classified
Acute toxicity, inhalation	Rat (4 h, vapour): no mortality at 29.3 mg/l (8,000 ppm); 6/6 died at 58.6 mg/l (16,000 ppm) – not classified
Skin corrosion/irritation	Not irritating (rabbit); defatting effect, EUH066
Serious eye damage/irritation	Causes serious eye irritation (Eye Irrit. 2, H319; harmonised classification)
Respiratory or skin sensitisation	Skin: not sensitising (guinea pig, OECD 406); respiratory: no data, not classified
Germ cell mutagenicity	Predominantly negative in vitro (Ames test, chromosome aberration test in CHO cells); negative in vivo (micronucleus test) – not classified
Carcinogenicity	No guideline carcinogenicity study available; not classified
Reproductive toxicity	No indication of effects on fertility or development (read-across from ethanol, the hydrolysis product); not classified
STOT – single exposure	May cause drowsiness or dizziness (STOT SE 3, H336; central nervous system)
STOT – repeated exposure	Not classified. Rat, inhalation (94 days): systemic NOAEC 350 ppm (1.28 mg/l); local changes of the olfactory mucosa from 350 ppm. Oral (90 days): NOAEL 900 mg/kg bw/day
Aspiration hazard	Not classified

11.2 Information on other hazards

Endocrine-disrupting properties: not identified. Ethyl acetate is rapidly hydrolysed in the body to ethanol and acetic acid. Symptoms after exposure: see Section 4.2.

SECTION 12 Ecological information

12.1 Toxicity

Endpoint	Value
Fish	LC50 (96 h) Pimephales promelas: 230 mg/l
Daphnia	EC50 (48 h) Daphnia cucullata: 165 mg/l; NOEC (21 d) Daphnia magna: 2.4 mg/l
Algae	NOEC (72 h, growth rate): > 100 mg/l
Bacteria	Pseudomonas putida (16 h): toxicity threshold 650 mg/l

Not classified as hazardous to the aquatic environment.

12.2 Persistence and degradability

Readily biodegradable (oxygen consumption 62 % after 10 days, 69 % after 20 days; CO₂ evolution 93.9 % after 28 days). Hydrolysis at pH 7 is very slow (half-life approx. 24 months).

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12.3 Bioaccumulative potential

Low bioaccumulation potential (BCF fish 30; log Kow 0.68).

12.4 Mobility in soil

Readily water-soluble and volatile; distributes mainly into air and water. No Koc value available.

12.5 Results of PBT and vPvB assessment

The substance does not meet the PBT/vPvB criteria of REACH Annex XIII.

12.6 Endocrine disrupting properties

Not identified as an endocrine disruptor for the environment.

12.7 Other adverse effects

Water hazard class (AwSV, Germany)

WGK 1 – slightly hazardous to water (ID no. 95)

SECTION 13 Disposal considerations

13.1 Waste treatment methods

Dispose of at an approved waste incineration plant or hazardous waste facility in accordance with local regulations. Do not dispose of with household waste; do not allow to enter drains. Empty packaging completely; dispose of uncleaned packaging as the substance itself.

Waste code (EWC, recommendation)

07 01 04* – other organic solvents, washing liquids and mother liquors;
packaging: 15 01 10*. The final assignment depends on the origin and use at the waste producer.

SECTION 14 Transport information

	ADR/RID	IMDG	IATA
14.1 UN number or ID number	UN 1173	UN 1173	UN 1173
14.2 UN proper shipping name	ETHYL ACETATE	ETHYL ACETATE	Ethyl acetate
14.3 Transport hazard class(es)	3	3	3
14.4 Packing group	II	II	II
14.5 Environmental hazards	No	Marine pollutant: No	No
Classification code / hazard identification no.	F1 / 33	–	–
Tunnel restriction code	D/E	–	–
Limited quantity (LQ) / excepted quantity (EQ)	1 L / E2	1 L / E2	Y341 / E2
EmS	–	F-E, S-D	–
Packing instruction (cargo / passenger)	–	–	364 (60 L) / 353 (5 L)
Hazard labels			

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14.6 Special precautions for user

See Sections 6 to 8. Secure against slipping and damage during transport; keep away from ignition sources.

14.7 Maritime transport in bulk according to IMO instruments

Not applicable – supplied in packages, IBCs and tank containers; no carriage in bulk according to IMO instruments intended.

SECTION 15 Regulatory information

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

EU regulations	Regulation (EC) No 1907/2006 (REACH): Annex XVII (restrictions) – entries 3, 40 and 75 (by virtue of the classification); not listed in Annex XIV (authorisation); not on the SVHC candidate list. Regulation (EC) No 1272/2008 (CLP). Regulation (EU) 2019/1021 (POPs): not listed. Regulation (EC) No 273/2004 (drug precursors): not listed. Directive (EU) 2017/164: indicative occupational exposure limit value (see Section 8). Directive 2012/18/EU (Seveso III): category P5c – flammable liquids (qualifying quantities 5,000 / 50,000 t).
VOC (Directive 2010/75/EU / 2004/42/EC)	Volatile organic compound: 100 %
National regulations (Germany)	Water hazard class: WGK 1 (AwSV, ID no. 95). Storage class: LGK 3 (TRGS 510). Occupational exposure limit: TRGS 900. Ordinance on Industrial Safety (BetrSichV): flammable liquid. Major Accidents Ordinance (12. BImSchV): Annex I no. 1.2.5.3 (P5c). TA Luft: organic substance, no. 5.2.5. Observe employment restrictions for expectant mothers and young workers.

15.2 Chemical safety assessment

A chemical safety assessment has been carried out by the registrant; exposure scenarios are not available to the supplier.

SECTION 16 Other information

Full text of hazard statements and abbreviations referred to in Sections 2 and 3

Code	Meaning
H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H336	May cause drowsiness or dizziness.
EUH066	Repeated exposure may cause skin dryness or cracking.
Flam. Liq. 2	Flammable liquid, category 2
Eye Irrit. 2	Serious eye irritation, category 2
STOT SE 3	Specific target organ toxicity (single exposure), category 3
ADR / RID / IMDG / IATA	European Agreement concerning the International Carriage of Dangerous Goods by Road / Regulations concerning the International Carriage of Dangerous Goods by Rail / International Maritime Dangerous Goods Code / International Air Transport Association
EmS / IBC	Emergency Schedule (IMDG Code) / intermediate bulk container
AGW / IOELV	German occupational exposure limit (TRGS 900) / EU indicative occupational exposure limit value
Excursion factor (I) / (II)	Peak limitation under TRGS 900: category I – substances for which the local effect determines the limit value; category II – substances with systemic (resorptive) effects
Y	A risk of damage to the embryo or foetus need not be feared if the occupational exposure limit and the biological limit value (BGW) are observed (TRGS 900)
DNEL / PNEC	Derived No-Effect Level / Predicted No-Effect Concentration

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LC50 / LD50 / EC50	Lethal concentration / lethal dose / effective concentration for 50 % of the test population
NOAEL / NOAEC / NOEC	No observed (adverse) effect level / concentration
bw / dw	Body weight / dry weight
log Kow / Koc / BCF	n-Octanol/water partition coefficient / organic carbon adsorption coefficient / bioconcentration factor
PBT / vPvB / SVHC	Persistent, bioaccumulative, toxic / very persistent, very bioaccumulative / substance of very high concern
WGK / AwSV / LGK	German water hazard class / Ordinance on facilities for handling substances hazardous to water / storage class under TRGS 510
VOC	Volatile organic compound

Further information

Classification procedure	Harmonised classification (Annex VI CLP, index no. 607-022-00-5).
Data sources	ECHA CHEM: harmonised classification and joint-submission registration dossier (lead dossier, accessed 02.10.2026); GisChem (BG RCI/BGHM), status 21.09.2026 (occupational exposure limit, WGK, storage class, safety parameters, protective equipment); TRGS 900/903; Directive (EU) 2017/164; ADR 205 / IMDG Code / IATA DGR; PENPET GREEN specification and technical data sheet.
Version / issue date	1.0 / 02.10.2026 (first issue)
Training advice	Workers must be instructed on the basis of this safety data sheet and the workplace instructions before starting work with the substance.

Disclaimer

The information in this safety data sheet reflects the present state of our knowledge on the date of issue and describes the product with regard to safety requirements. It does not constitute a guarantee of product properties and does not establish a contractual relationship. The recipient is responsible for observing the applicable laws and regulations.