

ethyl acetate U.G.

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

1.1. Product identifier

Product name	: ethyl acetate U.G.
Synonyms	: acetic acid ethyl ester; ETAC
Registration number REACH	: 01-2119475103-46
Product type REACH	: Substance/mono-constituent
CAS number	: 141-78-6
EC index number	: 607-022-00-5
EC number	: 205-500-4
Molecular mass	: 88.11 g/mol
Formula	: C ₄ H ₈ O ₂

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

1.2.1 Relevant identified uses

Exposure scenario title	Exposure scenario group	Sector of use	Use descriptors (PROC or PC)	Use descriptors (ERC)
ES01 Manufacture of substance, or use as an intermediate or process chemical	Industrial	SU 8	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15	ERC 1
	Industrial	SU 9	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15	ERC 1
ES02 Distribution of substance	Industrial	SU 8	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15	ERC 1
	Industrial	SU 9	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 15	ERC 1
ES03 Formulation & (re)packing of substances and mixtures	Industrial	SU 10	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 9, PROC 14, PROC 15	ERC 2
ES04 Industrial use as an Extraction Solvent and/or Processing Aid	Industrial	SU 10	PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 15	ERC 1
ES05 Use in coatings	Industrial	SU 3	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 14, PROC 15	ERC 4
ES06 Use in coatings	Professional	SU 22	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19	ERC 8a
	Professional	SU 22	PROC 1, PROC 2, PROC 3, PROC 4, PROC 5, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13, PROC 15, PROC 19	ERC 8d
ES07 Use in laboratories	Industrial	SU 3	PROC 10, PROC 15	ERC 4
	Professional	SU 22	PROC 10, PROC 15	ERC 8a
ES08 Use in coatings	Consumer	SU 21	PC 1, PC 9b, PC 9c, PC 18, PC 23, PC 34	ERC 8a
	Consumer	SU 21	PC 1, PC 9b, PC 9c, PC 18, PC 23, PC 34	ERC 8d
ES09 Use in coatings	Consumer	SU 21	PC 9a	ERC 8a
	Consumer	SU 21	PC 9a	ERC 8d
ES10 Use in cosmetics	Consumer	SU 21	PC 39	ERC 8d
ES11 Use in agrochemicals	Professional	SU 22	PROC 4, PROC 8a, PROC 8b, PROC 11, PROC 13, PROC 2	ERC 8a
	Professional	SU 22	PROC 2, PROC 4, PROC 8a, PROC 8b, PROC 11, PROC 13	ERC 8d
ES12 Use in agrochemicals	Consumer	SU 21	PC 27	ERC 8a
	Consumer	SU 21	PC 27	ERC 8d
ES13 Use in Cleaning Agents	Industrial	SU 3	PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 10, PROC 13	ERC 4
ES14 Use in Cleaning Agents	Professional	SU 22	PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13	ERC 8a

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ES14 Use in Cleaning Agents	Professional	SU 22	PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 10, PROC 11, PROC 13	ERC 8d
ES15 Use in lubricants	Industrial	SU 21	PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17, PROC 18	ERC 4
	Industrial	SU 21	PROC 1, PROC 2, PROC 3, PROC 4, PROC 7, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 13, PROC 17, PROC 18	ERC 7
ES16 Use in lubricants	Professional	SU 22	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17, PROC 18, PROC 20	ERC 8a
	Professional	SU 22	PROC 1, PROC 2, PROC 3, PROC 4, PROC 8a, PROC 8b, PROC 9, PROC 10, PROC 11, PROC 13, PROC 17, PROC 18, PROC 20	ERC 8d

1.2.2 Uses advised against

Group	Uses advised against	Use descriptors (PC)	Environmental release category (ERC)	Article (AC)
Consumer	No uses advised against			
Industrial	No uses advised against			
Professional	No uses advised against			

1.3. Details of the supplier of the safety data sheet

Supplier of the safety data sheet

GAMMA CHIMICA S.p.A.
Via Bergamo, 8
20020 Lainate (MI)
tel: +39 02 9317901
Fax: +39 02 93179055
msds@gammachimica.it

1.4. Emergency telephone number

Centro antiveneni Ospedale Milano Niguarda (only Italy)
+39 02 66101029 (24 h)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classified as dangerous according to the criteria of Regulation (EC) No 1272/2008

Class	Category	Hazard statements
Flam. Liq.	category 2	H225: Highly flammable liquid and vapour.
Eye Irrit.	category 2	H319: Causes serious eye irritation.
STOT SE	category 3	H336: May cause drowsiness or dizziness.

2.2. Label elements



Signal word

H-statements

H225

H319

H336

P-statements

P210



Danger

Highly flammable liquid and vapour.

Causes serious eye irritation.

May cause drowsiness or dizziness.

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

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P280	Wear protective gloves and eye protection/face protection.
P264	Wash hands thoroughly after handling.
P304 + P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P303 + P361 + P353	IF ON SKIN (or hair): 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.
P337 + P313	If eye irritation persists: Get medical advice/attention.
Supplemental information	
EUH066	Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards

Gas/vapour spreads at floor level: ignition hazard

SECTION 3: Composition/information on ingredients

3.1. Substances

Name REACH Registration No	CAS No EC No	Conc. (C)	Classification according to CLP	Note	Remark
ethyl acetate 01-2119475103-46	141-78-6 205-500-4	>=99.8 %	Flam. Liq. 2; H225 Eye Irrit. 2; H319 STOT SE 3; H336	(1)(2)(10)	Mono-constituent

(1) For H-statements in full: see heading 16

(2) Substance with a Community workplace exposure limit

(10) Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

General:

Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Never give alcohol to drink.

After inhalation:

Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

After skin contact:

Wash immediately with lots of water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists.

After eye contact:

Rinse immediately with plenty of water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists.

After ingestion:

Rinse mouth with water. Do not induce vomiting. Give activated charcoal. Consult a doctor/medical service if you feel unwell.

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

4.2.1 Acute symptoms

After inhalation:

EXPOSURE TO HIGH CONCENTRATIONS: Irritation of the respiratory tract. Irritation of the nasal mucous membranes. Central nervous system depression. Dizziness. Headache. Narcosis. Disturbances of consciousness.

After skin contact:

ON CONTINUOUS EXPOSURE/CONTACT: Dry skin. Cracking of the skin.

After eye contact:

Slight irritation.

After ingestion:

Nausea. Vomiting. Risk of aspiration pneumonia. Central nervous system depression. Symptoms similar to those listed under inhalation.

4.2.2 Delayed symptoms

If applicable and available it will be listed below.

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

If applicable and available it will be listed below.

SECTION 5: Firefighting measures

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5.1. Extinguishing media

5.1.1 Suitable extinguishing media:

Preferably: alcohol resistant foam. Polyvalent foam. BC powder. Carbon dioxide.

5.1.2 Unsuitable extinguishing media:

Solid water jet ineffective as extinguishing medium.

5.2. Special hazards arising from the substance or mixture

Upon combustion: CO and CO₂ are formed. Decomposes slowly on exposure to light, on exposure to air, on exposure to water (moisture) and on exposure to temperature rise: release of corrosive products (acetic acid vapours) and release of highly flammable gases/vapours (ethanol).

5.3. Advice for firefighters

5.3.1 Instructions:

Cool tanks/drums with water spray/remove them into safety. Do not move the load if exposed to heat. Dilute toxic gases with water spray.

5.3.2 Special protective equipment for fire-fighters:

Gloves. Protective goggles. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus. Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Keep upwind. Seal off low-lying areas. Close doors and windows of adjacent premises. Stop engines and no smoking. No naked flames or sparks. Spark- and explosionproof appliances and lighting equipment. Keep containers closed.

6.1.1 Protective equipment for non-emergency personnel

See heading 8.2

6.1.2 Protective equipment for emergency responders

Gloves. Protective goggles. Protective clothing. Large spills/in enclosed spaces: compressed air apparatus.

Suitable protective clothing

See heading 8.2

6.2. Environmental precautions

Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Try to reduce evaporation. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

Take up liquid spill into absorbent material, e.g.: sand, earth, vermiculite. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling.

6.4. Reference to other sections

See heading 13.

SECTION 7: Handling and storage

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

7.1. Precautions for safe handling

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Gas/vapour heavier than air at 20°C. Observe normal hygiene standards. Keep container tightly closed. Remove contaminated clothing immediately. Do not discharge the waste into the drain.

7.2. Conditions for safe storage, including any incompatibilities

7.2.1 Safe storage requirements:

Store in a cool area. Store in a dry area. Store in a dark area. Keep out of direct sunlight. Ventilation at floor level. Fireproof storeroom. Provide for an automatic sprinkler system. Provide for a tub to collect spills. Provide the tank with earthing. Meet the legal requirements.

7.2.2 Keep away from:

Heat sources, ignition sources, oxidizing agents, (strong) acids, (strong) bases, peroxides, water/moisture.

7.2.3 Suitable packaging material:

Stainless steel, carbon steel, iron, aluminium, copper, nickel, polypropylene, glass, tin.

7.2.4 Non suitable packaging material:

PVC.

7.3. Specific end use(s)

If applicable and available, exposure scenarios are attached in annex. See information supplied by the manufacturer.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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8.1.1 Occupational exposure

a) Occupational exposure limit values

If limit values are applicable and available these will be listed below.

Belgium

Acétate d'éthyle	Time-weighted average exposure limit 8 h	400 ppm
	Time-weighted average exposure limit 8 h	1461 mg/m ³

The Netherlands

Ethylacetaat	Time-weighted average exposure limit 8 h (Private occupational exposure limit value)	150 ppm
	Time-weighted average exposure limit 8 h (Private occupational exposure limit value)	550 mg/m ³
	Short time value (Private occupational exposure limit value)	300 ppm
	Short time value (Private occupational exposure limit value)	1100 mg/m ³

France

Acétate d'éthyle	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	400 ppm
	Time-weighted average exposure limit 8 h (VL: Valeur non réglementaire indicative)	1400 mg/m ³

Germany

Ethylacetat	Time-weighted average exposure limit 8 h (TRGS 900)	400 ppm
	Time-weighted average exposure limit 8 h (TRGS 900)	1500 mg/m ³

UK

Ethyl acetate	Time-weighted average exposure limit 8 h (Workplace exposure limit (EH40/2005))	200 ppm
	Short time value (Workplace exposure limit (EH40/2005))	400 ppm

USA (TLV-ACGIH)

Ethyl acetate	Time-weighted average exposure limit 8 h (TLV - Adopted Value)	400 ppm
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b) National biological limit values

If limit values are applicable and available these will be listed below.

8.1.2 Sampling methods

Product name	Test	Number
Ethyl acetate (Volatile Organic compounds)	NIOSH	2549
Ethyl Acetate	NIOSH	1457
Ethyl Acetate	OSHA	7

8.1.3 Applicable limit values when using the substance or mixture as intended

If limit values are applicable and available these will be listed below.

8.1.4 DNEL/PNEC values

DNEL/DMEL - Workers

ethyl acetate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Acute systemic effects inhalation	1468 mg/m ³	
	Acute local effects inhalation	1468 mg/m ³	
	Long-term systemic effects dermal	63 mg/kg bw/day	
	Long-term systemic effects inhalation	734 mg/m ³	
	Long-term local effects inhalation	734 mg/m ³	

DNEL/DMEL - General population

ethyl acetate

Effect level (DNEL/DMEL)	Type	Value	Remark
DNEL	Acute systemic effects inhalation	734 mg/m ³	
	Acute local effects inhalation	734 mg/m ³	
	Long-term systemic effects dermal	37 mg/kg bw/day	
	Long-term systemic effects inhalation	367 mg/m ³	
	Long-term systemic effects oral	4.5 mg/kg bw/day	
	Long-term local effects inhalation	367 mg/m ³	

PNEC

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Compartment	Value	Remark
Fresh water	0.24 mg/l	
Marine water	0.024 mg/l	

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Aqua (intermittent releases)	1.65 mg/l	
Fresh water sediment	1.15 mg/kg sediment dw	
Marine water sediment	0.115 mg/kg sediment dw	
Soil	0.148 mg/kg soil dw	

8.1.5 Control banding

If applicable and available it will be listed below.

8.2. Exposure controls

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

8.2.1 Appropriate engineering controls

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly. Work under local exhaust/ventilation.

8.2.2 Individual protection measures, such as personal protective equipment

Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke during work.

a) Respiratory protection:

Wear gas mask with filter type A if conc. in air > exposure limit.

b) Hand protection:

Gloves.

- materials (excellent resistance)

Polyethylene/ethylenevinylalcohol.

- materials (good resistance)

PVA.

- materials (less resistance)

Butyl rubber.

- materials (poor resistance)

Neoprene, natural rubber, nitrile rubber, polyethylene, PVC, viton.

c) Eye protection:

Protective goggles.

d) Skin protection:

Head/neck protection. Protective clothing.

8.2.3 Environmental exposure controls:

See headings 6.2, 6.3 and 13

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical form	Liquid
Odour	Fruity odour
Odour threshold	6 - 75 ppm 22 - 270 mg/m ³
Colour	Colourless
Particle size	Not applicable
Explosion limits	2.0 - 11.5 vol %
Flammability	Highly flammable
Log Kow	0.68 ; Test data ; 25 °C
Dynamic viscosity	0.00045 Pa.s ; 20 °C
Kinematic viscosity	Not determined
Melting point	-84 °C
Boiling point	77 °C ; Test data
Flash point	-4 °C ; Weight of evidence approach ; 1013 hPa
Evaporation rate	2.4 ; ether 6 ; butyl acetate
Relative vapour density	3.0
Vapour pressure	98.3 hPa ; 20 °C
Solubility	water ; 8 g/100 ml ; 25 °C
Relative density	0.9003 ; 20 °C ; Test data
Decomposition temperature	No data available
Auto-ignition temperature	427 °C
Explosive properties	No chemical group associated with explosive properties
Oxidising properties	No chemical group associated with oxidising properties
pH	No data available

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9.2. Other information

Minimum ignition energy	0.46 mJ
Specific conductivity	> 0.1 µS/m
Critical temperature	250 °C
Critical pressure	38500 hPa
Surface tension	0.024 N/m ; 20 °C
Relative density saturated vapour/air mixture	1.2
Saturation concentration	350 g/m³
Absolute density	902 kg/m³

SECTION 10: Stability and reactivity

10.1. Reactivity

May be ignited by sparks. Gas/vapour spreads at floor level: ignition hazard. Substance has neutral reaction.

10.2. Chemical stability

Unstable on exposure to light. Unstable on exposure to moisture. Unstable on exposure to air.

10.3. Possibility of hazardous reactions

Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Violent exothermic reaction with (some) acids.

10.4. Conditions to avoid

Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks.

10.5. Incompatible materials

Oxidizing agents, (strong) acids, (strong) bases, peroxides, water/moisture.

10.6. Hazardous decomposition products

Upon combustion: CO and CO₂ are formed. Decomposes slowly on exposure to light, on exposure to air, on exposure to water (moisture) and on exposure to temperature rise: release of corrosive products (acetic acid vapours) and release of highly flammable gases/vapours (ethanol).

SECTION 11: Toxicological information

11.1. Information on toxicological effects

11.1.1 Test results

- Toxicokinetics: summary

This substance is readily absorbed by the following route of exposure:

Inhalation.

Oral.

Absorption by the dermal route is only expected following prolonged exposure.

The substance is water soluble and will be distributed throughout the body via the bloodstream.

The substance is rapidly metabolised.

For ethyl acetate, metabolism is to ethanol and acetate by esterase enzymes that are widely distributed throughout the body.

Ethanol metabolism, primarily in the liver removes the ethanol produced by ethyl acetate hydrolysis.

Acute toxicity

ethyl acetate

Route of exposure	Parameter	Method	Value	Exposure time	Species	Value determination	Remark
Oral	LD50	Equivalent to OECD 401	4934 mg/kg bw		Rabbit (male/female)	Experimental value	
Dermal	LD50	24 hour cuff method	> 20000 mg/kg bw		Rabbit (male)	Experimental value	
Inhalation	LC50	Other	> 22.5 mg/l	6 h	Rat (male/female)	Experimental value	

Conclusion

Not classified for acute toxicity

Corrosion/irritation

ethyl acetate

Route of exposure	Result	Method	Exposure time	Time point	Species	Value determination	Remark
Eye	Not irritating	OECD 405		24; 48; 72 hours	Rabbit	Experimental value	
Eye	Not irritating	Human observation	4 h		Human	Experimental value	
Eye	Irritating; category 2					Annex VI	

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Dermal	Slightly irritating	Equivalent to OECD 404		24; 48; 72 hours	Rabbit	Experimental value	
Dermal	Not irritating	Patch test	4 week(s)		Human	Experimental value	
Inhalation	Slightly irritating	Human observation	4 h		Human	Experimental value	

Classification of this substance according to Annex VI is debatable as it does not correspond to the conclusion from the test

Conclusion

Causes serious eye irritation.

Not classified as irritating to the skin

Respiratory or skin sensitisation

ethyl acetate

Route of exposure	Result	Method	Exposure time	Observation time point	Species	Value determination	Remark
Dermal	Not sensitizing	OECD 406		24; 48 hours	Guinea pig (female)	Experimental value	

Conclusion

Not classified as sensitizing for skin

No respiratory sensitization data available

Specific target organ toxicity

ethyl acetate

Route of exposure	Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
Oral	NOAEL	Equivalent to OECD 410	900 mg/kg bw/day		No effect	90 day(s) - 92 day(s)	Rat (male/female)	Experimental value
Inhalation	NOEC	Equivalent to OECD 413	350 ppm		General effects	94 day(s)	Rat (male/female)	Experimental value
Inhalation	LOEC	Equivalent to OECD 413	350 ppm		Nasal irritation	94 day(s)	Rat (male/female)	Experimental value

Conclusion

May cause drowsiness or dizziness.

Not classified for subchronic toxicity

Mutagenicity (in vitro)

ethyl acetate

Result	Method	Test substrate	Effect	Value determination
Negative	Equivalent to OECD 471	Bacteria (S.typhimurium)		Experimental value

Mutagenicity (in vivo)

ethyl acetate

Result	Method	Exposure time	Test substrate	Organ	Value determination
Negative	Equivalent to OECD 474		Hamster (male/female)		Experimental value

Conclusion

Mutagenicity and genotoxicity are not likely to be manifest

Carcinogenicity

ethyl acetate

No (test) data available

Reproductive toxicity

ethyl acetate

	Parameter	Method	Value	Exposure time	Species	Effect	Organ	Value determination
Developmental toxicity	NOAEC	Equivalent to OECD 414	73300 mg/m ³	1 days (gestation, daily) - 19 days (gestation, daily)	Rat	Histopathological changes	General	Read-across

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Developmental toxicity	NOAEL	Equivalent to OECD 414	> 3600 mg/kg bw/day	8 days (gestation, daily) - 14 days (gestation, daily)	Mouse	No effect		Read-across
Effects on fertility	NOAEL	Equivalent to OECD 416	26400 mg/kg bw/day	18 week(s)	Mouse (male/female)	No effect	General	Read-across

Conclusion

Toxicity to reproduction is unlikely to be significant

Toxicity other effects

ethyl acetate

Parameter	Method	Value	Organ	Effect	Exposure time	Species	Value determination
NOAEC	Equivalent to OECD 424	750 ppm		neurotoxic effects	99 day(s) - 100 day (s)	Rat (male/female)	Experimental value

Conclusion

Repeated exposure may cause skin dryness or cracking.

Chronic effects from short and long-term exposure

ethyl acetate

ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Red skin. Tingling/irritation of the skin. Itching. Skin rash/inflammation. Change in the haemogramme/blood composition. Loss of appetite. Enlargement/affection of the liver. Affection of the renal tissue.

SECTION 12: Ecological information

12.1. Toxicity

ethyl acetate

	Parameter	Method	Value	Duration	Species	Test design	Fresh/salt water	Value determination
Acute toxicity fishes	LC50	US EPA	230 mg/l	96 h	Pimephales promelas	Flow-through system	Fresh water	Experimental value
Acute toxicity invertebrates	EC50	Other	165 mg/l	48 h	Daphnia magna		Fresh water	Experimental value
	IC50	Other	346 mg/l	48 h	Artemia salina		Salt water	Experimental value
Toxicity algae and other aquatic plants	LC50	DIN 38412-9	5600 mg/l	48 h	Desmodesmus subspicatus	Static system	Fresh water	Experimental value
	NOEC	Other	> 1000 mg/l	48 h	Scenedesmus pannonicus		Fresh water	Experimental value
Acute toxicity other aquatic organisms	LC50	Other	180 mg/l	48 h	Xenopus laevis		Fresh water	Experimental value
Long-term toxicity fish	NOEC	Equivalent to OECD 212	< 9.65 mg/l	96 h	Pimephales promelas	Flow-through system	Fresh water	Experimental value
Long-term toxicity invertebrates	NOEC	Other	2.4 mg/l	21 day(s)	Daphnia magna	Semi-static system	Fresh water	Experimental value
Toxicity aquatic micro-organisms	Toxicity threshold	Equivalent to DIN 38412/8	650 mg/l	16 h	Pseudomonas putida	Static system	Fresh water	Experimental value

Conclusion

Not harmful to fishes

Slightly harmful to algae

Not harmful to crustacea

Slightly harmful to bacteria

Stability of the substance is pH dependent

Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008

12.2. Persistence and degradability

ethyl acetate

Biodegradation water

Method	Value	Duration	Value determination
Other	69 %	20 day(s)	Experimental value

Phototransformation air (DT50 air)

Method	Value	Conc. OH-radicals	Value determination
Other	75 h		Experimental value

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Conclusion

Readily biodegradable in water

12.3. Bioaccumulative potential

ethyl acetate

BCF fishes

Parameter	Method	Value	Duration	Species	Value determination
BCF		30	3 day(s)	Leuciscus idus	Experimental value

Log Kow

Method	Remark	Value	Temperature	Value determination
		0.68	25 °C	Test data

Conclusion

Low potential for bioaccumulation (BCF < 500)

12.4. Mobility in soil

ethyl acetate

(log) Koc

Parameter	Method	Value	Value determination
			No data available

Percent distribution

Method	Fraction air	Fraction biota	Fraction sediment	Fraction soil	Fraction water	Value determination
Mackay level III	51.3 %	0 %	0.27 %	13.3 %	35.3 %	QSAR
Mackay level I	98.47 %	0 %	0 %	0.26 %	1.27 %	QSAR

Conclusion

Low potential for adsorption in soil

12.5. Results of PBT and vPvB assessment

Substance does not meet the criteria of PBT, nor the criteria of vPvB according to Annex XIII of Regulation (EC) No 1907/2006, so is neither PBT nor vPvB.

12.6. Other adverse effects

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Fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Not included in the list of fluorinated greenhouse gases (Regulation (EU) No 517/2014)

Ozone-depleting potential (ODP)

Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009)

Ground water

Ground water pollutant

SECTION 13: Disposal considerations

The information in this section is a general description. If applicable and available, exposure scenarios are attached in annex. Always use the relevant exposure scenarios that correspond to your identified use.

13.1. Waste treatment methods

13.1.1 Provisions relating to waste

Hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014.

Waste material code (Directive 2008/98/EC, Decision 2000/0532/EC).

07 01 04* (wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals: other organic solvents, washing liquids and mother liquors).

16 05 06* (gases in pressure containers and discarded chemicals: laboratory chemicals, consisting of or containing hazardous substances, including mixtures of laboratory chemicals). Depending on branch of industry and production process, also other waste codes may be applicable.

13.1.2 Disposal methods

Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants. Do not discharge into surface water.

13.1.3 Packaging/Container

Waste material code packaging (Directive 2008/98/EC).

15 01 10* (packaging containing residues of or contaminated by dangerous substances).

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Road (ADR)

14.1. UN number

UN number	1173
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14.2. UN proper shipping name

Proper shipping name	Ethyl acetate
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14.3. Transport hazard class(es)

Hazard identification number	33
Class	3
Classification code	F1

14.4. Packing group

Packing group	II
Labels	3

14.5. Environmental hazards

Environmentally hazardous substance mark	no
--	----

14.6. Special precautions for user

Special provisions	
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Rail (RID)

14.1. UN number

UN number	1173
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14.2. UN proper shipping name

Proper shipping name	Ethyl acetate
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14.3. Transport hazard class(es)

Hazard identification number	33
Class	3
Classification code	F1

14.4. Packing group

Packing group	II
Labels	3

14.5. Environmental hazards

Environmentally hazardous substance mark	no
--	----

14.6. Special precautions for user

Special provisions	
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Inland waterways (ADN)

14.1. UN number

UN number	1173
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14.2. UN proper shipping name

Proper shipping name	Ethyl acetate
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14.3. Transport hazard class(es)

Class	3
Classification code	F1

14.4. Packing group

Packing group	II
Labels	3

14.5. Environmental hazards

Environmentally hazardous substance mark	no
--	----

14.6. Special precautions for user

Special provisions	
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

Sea (IMDG/IMSBC)

14.1. UN number

UN number	1173
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14.2. UN proper shipping name

Proper shipping name	Ethyl acetate
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14.3. Transport hazard class(es)

Class	3
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14.4. Packing group

Packing group	II
Labels	3

14.5. Environmental hazards

Marine pollutant	-
Environmentally hazardous substance mark	no

14.6. Special precautions for user

Special provisions	
Limited quantities	Combination packagings: not more than 1 liter per inner packaging for liquids. A package shall not weigh more than 30 kg. (gross mass)

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Annex II of MARPOL 73/78	Not applicable, based on available data
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Air (ICAO-TI/IATA-DGR)

14.1. UN number

UN number	1173
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14.2. UN proper shipping name

Proper shipping name	Ethyl acetate
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14.3. Transport hazard class(es)

Class	3
-------	---

14.4. Packing group

Packing group	II
Labels	3

14.5. Environmental hazards

Environmentally hazardous substance mark	no
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14.6. Special precautions for user

Special provisions	
limited quantities: maximum net quantity per packaging	1 L

SECTION 15: Regulatory information

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

European legislation:

VOC content Directive 2010/75/EU

VOC content	Remark
100 %	

REACH Annex XVII - Restriction

Subject to restrictions of Annex XVII of Regulation (EC) No. 1907/2006: restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles.

	Designation of the substance, of the group of substances or of the mixture	Conditions of restriction
ethyl acetate	Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: (a) hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F; (b) hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10; (c) hazard class 4.1; (d) hazard class 5.1.	1. Shall not be used in: — ornamental articles intended to produce light or colour effects by means of different phases, for example in ornamental lamps and ashtrays, — tricks and jokes, — games for one or more participants, or any article intended to be used as such, even with ornamental aspects, 2. Articles not complying with paragraph 1 shall not be placed on the market. 3. Shall not be placed on the market if they contain a colouring agent, unless required for fiscal reasons, or perfume, or both, if they: — can be used as fuel in decorative oil lamps for supply to the general public, and, — present an aspiration hazard and are labelled with R65 or H304, 4. Decorative oil lamps for supply to the general public shall not be placed on the market unless they conform to the European Standard on Decorative oil lamps (EN 14059) adopted by the European Committee for Standardisation (CEN). 5. Without prejudice to the implementation of other Community provisions relating to the classification, packaging and labelling of dangerous substances and mixtures, suppliers shall ensure, before the placing on the market, that the following requirements are met: a) lamp oils, labelled with R65 or H304, intended for supply to the general public are visibly, legibly and indelibly marked as follows: "Keep lamps filled with this liquid out of the reach of children"; and, by 1 December 2010, "Just a sip of lamp oil — or even sucking the wick of lamps — may lead to life-threatening lung damage"; b) grill lighter fluids, labelled with R65 or H304, intended for supply to the general public are legibly and indelibly marked by 1 December 2010 as follows: "Just a sip of grill lighter may lead to life threatening lung damage"; c) lamp oils and grill lighters, labelled with R65 or H304, intended for supply to the general public are packaged in black opaque containers not exceeding 1 litre by 1 December 2010. 6. No later than 1 June 2014, the Commission shall request the European Chemicals Agency to prepare a dossier, in accordance with Article 69 of the present Regulation with a view to ban, if appropriate, grill lighter fluids and fuel for decorative lamps, labelled R65 or H304,

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		intended for supply to the general public.7. Natural or legal persons placing on the market for the first time lamp oils and grill lighter fluids, labelled with R65 or H304, shall by 1 December 2011, and annually thereafter, provide data on alternatives to lamp oils and grill lighter fluids labelled R65 or H304 to the competent authority in the Member State concerned. Member States shall make those data available to the Commission.'
ethyl acetate	Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to that Regulation or not.	1. Shall not be used, as substance or as mixtures in aerosol dispensers where these aerosol dispensers are intended for supply to the general public for entertainment and decorative purposes such as the following: — metallic glitter intended mainly for decoration, — artificial snow and frost, — “whoopie” cushions, — silly string aerosols, — imitation excrement, — horns for parties, — decorative flakes and foams, — artificial cobwebs, — stink bombs.2. Without prejudice to the application of other Community provisions on the classification, packaging and labelling of substances, suppliers shall ensure before the placing on the market that the packaging of aerosol dispensers referred to above is marked visibly, legibly and indelibly with: “For professional users only”.3. By way of derogation, paragraphs 1 and 2 shall not apply to the aerosol dispensers referred to Article 8 (1a) of Council Directive 75/ 324/EEC.4. The aerosol dispensers referred to in paragraphs 1 and 2 shall not be placed on the market unless they conform to the requirements indicated.

National legislation Belgium

No data available

National legislation The Netherlands

Waste identification (the Netherlands)	LWCA (the Netherlands): KGA category 03
Waterbezwaarlijkheid	B (5)

National legislation France

No data available

National legislation Germany

WGK	1; Classification water polluting in compliance with Verwaltungsvorschrift wassergefährdender Stoffe (VwVwS) of 27 July 2005 (Anhang 2)
TA-Luft	5.2.5; I
TRGS900 - Risiko der Fruchtschädigung	Ethylacetat; Y; Risiko der Fruchtschädigung braucht bei Einhaltung des Arbeitsplatzgrenzwertes und des biologischen Grenzwertes nicht befürchtet zu werden

National legislation United Kingdom

No data available

Other relevant data

No data available

15.2. Chemical safety assessment

A chemical safety assessment has been performed.

SECTION 16: Other information

Full text of any H-statements referred to under headings 2 and 3:

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

(*)	INTERNAL CLASSIFICATION BY BIG
CLP (EU-GHS)	Classification, labelling and packaging (Globally Harmonised System in Europe)
DMEL	Derived Minimal Effect Level
DNEL	Derived No Effect Level
EC50	Effect Concentration 50 %
ErC50	EC50 in terms of reduction of growth rate
LC50	Lethal Concentration 50 %
LD50	Lethal Dose 50 %
NOAEL	No Observed Adverse Effect Level
NOEC	No Observed Effect Concentration
OECD	Organisation for Economic Co-operation and Development
PBT	Persistent, Bioaccumulative & Toxic
PNEC	Predicted No Effect Concentration

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ethyl acetate U.G.

STP
vPvB

Sludge Treatment Process
very Persistent & very Bioaccumulative

The information in this safety data sheet is based on data and samples provided to BIG. The sheet was written to the best of our ability and according to the state of knowledge at that time. The safety data sheet only constitutes a guideline for the safe handling, use, consumption, storage, transport and disposal of the substances/preparations/mixtures mentioned under point 1. New safety data sheets are written from time to time. Only the most recent versions may be used. Old versions must be destroyed. Unless indicated otherwise word for word on the safety data sheet, the information does not apply to substances/preparations/mixtures in purer form, mixed with other substances or in processes. The safety data sheet offers no quality specification for the substances/preparations/mixtures in question. Compliance with the instructions in this safety data sheet does not release the user from the obligation to take all measures dictated by common sense, regulations and recommendations or which are necessary and/or useful based on the real applicable circumstances. BIG does not guarantee the accuracy or exhaustiveness of the information provided and cannot be held liable for any changes by third parties. This safety data sheet is only to be used within the European Union, Switzerland, Iceland, Norway and Liechtenstein. Any use outside of this area is at your own risk. Use of this safety data sheet is subject to the licence and liability limiting conditions as stated in your BIG licence agreement or when this is failing the general conditions of BIG. All intellectual property rights to this sheet are the property of BIG and its distribution and reproduction are limited. Consult the mentioned agreement/conditions for details.

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