

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 02.04.2019

Version 10.5

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

| | |
|---------------------------|---|
| Catalogue No. | 109623 |
| Product name | Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur |
| REACH Registration Number | 01-2119475103-46-XXXX |
| CAS-No. | 141-78-6 |

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

| | |
|-----------------|--|
| Identified uses | Reagent for analysis, Chemical production In compliance with the conditions described in the annex to this safety data sheet. |
|-----------------|--|

1.3 Details of the supplier of the safety data sheet

| | |
|------------------------|---|
| Company | Merck KGaA * 64271 Darmstadt * Germany * Phone: +49 6151 72-0 |
| Responsible Department | LS-QHC * e-mail: prodsafe@merckgroup.com |

1.4 Emergency telephone number **Please contact the regional company representation in your country.****SECTION 2. Hazards identification****2.1 Classification of the substance or mixture**
Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 2, H225
Eye irritation, Category 2, H319
Specific target organ toxicity - single exposure, Category 3, Central nervous system, H336

For the full text of the H-Statements mentioned in this Section, see Section 16.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.
Product name

109623
Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

2.2 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

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.

Precautionary statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P240 Ground/bond container and receiving equipment.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Index-No. 607-022-00-5

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

| | | |
|-----------|--|---|
| Formula | CH ₃ COOC ₂ H ₅ | C ₄ H ₈ O ₂ (Hill) |
| Index-No. | 607-022-00-5 | |
| EC-No. | 205-500-4 | |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Molar mass 88,11 g/mol

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

| CAS-No. | Registration number | Classification |
|---------|---------------------|----------------|
|---------|---------------------|----------------|

ethyl acetate (<= 100 %)

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

| | | |
|----------|-----------------------|--|
| 141-78-6 | 01-2119475103-46-XXXX | Flammable liquid, Category 2, H225 Eye irritation, Category 2, H319 Specific target organ toxicity - single exposure, Category 3, H336 |
|----------|-----------------------|--|

For the full text of the H-Statements mentioned in this Section, see Section 16.

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Subsequently administer: activated charcoal (20 - 40 g in 10% slurry).

Laxative: Sodium sulfate (1 tablespoon/1/4 l water).

4.2 Most important symptoms and effects, both acute and delayed

irritant effects, respiratory paralysis, Drowsiness, narcosis, Nausea, Vomiting, Headache, somnolence, Salivation, Dizziness
Repeated exposure may cause skin dryness or cracking.

4.3 Indication of any immediate medical attention and special treatment needed

After swallowing of large amounts: Gastric lavage.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Foam, Carbon dioxide (CO₂), Dry powder

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Combustible.

Pay attention to flashback.

Forms explosive mixtures with air at ambient temperatures.

Vapours are heavier than air and may spread along floors.

Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters

Special protective equipment for firefighters

In the event of fire, wear self-contained breathing apparatus.

Further information

Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Do not breathe vapours, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

6.2 Environmental precautions

Do not let product enter drains. Risk of explosion.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemisorb®). Dispose of properly. Clean up affected area.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.
Product name

109623
Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Hygiene measures

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Protected from light.

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Recommended storage temperature see product label.

7.3 Specific end use(s)

See exposure scenario in the Annex to this MSDS.

SECTION 8. Exposure controls/personal protection

8.1 Control parameters

Derived No Effect Level (DNEL)

| | | | |
|-------------------------|------------------|------------|------------------------|
| Worker DNEL, acute | Systemic effects | inhalation | 1468 mg/m ³ |
| Worker DNEL, acute | Local effects | inhalation | 1468 mg/m ³ |
| Worker DNEL, longterm | Systemic effects | dermal | 63 mg/kg Body weight |
| Worker DNEL, longterm | Systemic effects | inhalation | 734 mg/m ³ |
| Worker DNEL, longterm | Local effects | inhalation | 734 mg/m ³ |
| Consumer DNEL, acute | Systemic effects | inhalation | 734 mg/m ³ |
| Consumer DNEL, acute | Local effects | inhalation | 734 mg/m ³ |
| Consumer DNEL, longterm | Systemic effects | dermal | 37 mg/kg Body weight |
| Consumer DNEL, longterm | Systemic effects | inhalation | 367 mg/m ³ |
| Consumer DNEL, longterm | Systemic effects | oral | 4,5 mg/kg Body weight |
| Consumer DNEL, longterm | Local effects | inhalation | 367 mg/m ³ |

Predicted No Effect Concentration (PNEC)

| | |
|---------------------------|-------------|
| PNEC Fresh water | 0,24 mg/l |
| PNEC Marine water | 0,024 mg/l |
| PNEC Fresh water sediment | 1,15 mg/kg |
| PNEC Marine sediment | 0,115 mg/kg |
| PNEC Soil | 0,148 mg/kg |

8.2 Exposure controls

Engineering measures

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Safety glasses

Hand protection

splash contact:

Glove material: butyl-rubber
Glove thickness: 0,7 mm
Break through time: > 120 min

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 898 Butoject® (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

Flame retardant antistatic protective clothing.

Respiratory protection

required when vapours/aerosols are generated.

Recommended Filter type: Filter A (acc. to DIN 3181) for vapours of organic compounds

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

Risk of explosion.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form liquid

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

| | |
|--|--|
| Colour | colourless |
| Odour | fruity |
| Odour Threshold | 0,1 - 181,5 ppm |
| pH | No information available. |
| Melting point | -83 °C |
| Boiling point/boiling range | 77 °C at 1.013 hPa |
| Flash point | -4 °C Method: c.c. |
| Evaporation rate | No information available. |
| Flammability (solid, gas) | No information available. |
| Lower explosion limit | 2,1 %(V) |
| Upper explosion limit | 11,5 %(V) |
| Vapour pressure | 97 hPa at 20 °C |
| Relative vapour density | 3,04 |
| Density | 0,90 g/cm ³ at 20 °C |
| Relative density | No information available. |
| Water solubility | 85,3 g/l at 20 °C |
| Partition coefficient: n-octanol/water | log Pow: 0,73 (experimental) (Lit.) Bioaccumulation is not expected. |
| Auto-ignition temperature | No information available. |
| Decomposition temperature | Distillable in an undecomposed state at normal pressure. |
| Viscosity, dynamic | 0,44 mPa.s at 20 °C |
| Explosive properties | Not classified as explosive. |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Oxidizing properties none

9.2 Other data

Ignition temperature 460 °C
Method: DIN 51794

Minimum ignition energy 1,42 mJ

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.

10.2 Chemical stability

Sensitivity to light
Sensitive to air.

10.3 Possibility of hazardous reactions

Risk of ignition or formation of inflammable gases or vapours with:

Exothermic reaction with:

Fluorine, chlorosulfonic acid, Strong oxidizing agents, fuming sulfuric acid

Risk of explosion with:

lithium aluminium hydride, Alkali metals, hydrides, Alkaline earth metals

Violent reactions possible with:

Strong acids and strong bases

10.4 Conditions to avoid

Warming.

10.5 Incompatible materials

various plastics

10.6 Hazardous decomposition products

no information available

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 5.620 mg/kg

(RTECS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis., Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

Symptoms: Possible damages:, mucosal irritations

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Acute dermal toxicity

LD50 Rabbit: > 18.000 mg/kg
(External MSDS)

Skin irritation

Rabbit

Result: No skin irritation

(IUCLID)

Repeated exposure may cause skin dryness or cracking.

Eye irritation

Causes serious eye irritation.

Sensitisation

Maximisation Test Guinea pig

Result: negative

Method: OECD Test Guideline 406

After long-term exposure to the chemical: Sensitisation possible in predisposed persons.

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

Mutagenicity (mammal cell test): chromosome aberration.

Result: negative

(National Toxicology Program)

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

Specific target organ toxicity - single exposure

May cause drowsiness or dizziness.

Target Organs: Central nervous system

Specific target organ toxicity - repeated exposure

This information is not available.

Aspiration hazard

This information is not available.

11.2 Further information

Systemic effects:

lack of appetite, Headache, Drowsiness, Dizziness

In high concentrations:

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Salivation, Nausea, Vomiting, narcosis, respiratory paralysis
Other dangerous properties can not be excluded.
Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

12.1 Toxicity

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 230 mg/l; 96 h
(IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 717 mg/l; 48 h
(IUCLID)

Toxicity to algae

IC50 Desmodesmus subspicatus (green algae): 3.300 mg/l; 48 h
(IUCLID)

Toxicity to bacteria

EC10 Pseudomonas putida: 2.900 mg/l; 16 h
(IUCLID)

12.2 Persistence and degradability

Biodegradability

100 %; 28 d

OECD Test Guideline 301D

Readily biodegradable

Theoretical oxygen demand (ThOD)

1.820 mg/g

(Lit.)

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0,73

(experimental)

(Lit.) Bioaccumulation is not expected.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC)

No 1907/2006, Annex XIII.

12.6 Other adverse effects

Discharge into the environment must be avoided.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

| | |
|--|---------------|
| 14.1 UN number | UN 1173 |
| 14.2 Proper shipping name | ETHYL ACETATE |
| 14.3 Class | 3 |
| 14.4 Packing group | II |
| 14.5 Environmentally hazardous | -- |
| 14.6 Special precautions for user | yes |
| Tunnel restriction code | D/E |

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

| | |
|--|---------------|
| 14.1 UN number | UN 1173 |
| 14.2 Proper shipping name | ETHYL ACETATE |
| 14.3 Class | 3 |
| 14.4 Packing group | II |
| 14.5 Environmentally hazardous | -- |
| 14.6 Special precautions for user | no |

Sea transport (IMDG)

| | |
|--|---------------|
| 14.1 UN number | UN 1173 |
| 14.2 Proper shipping name | ETHYL ACETATE |
| 14.3 Class | 3 |
| 14.4 Packing group | II |
| 14.5 Environmentally hazardous | -- |
| 14.6 Special precautions for user | yes |
| EmS | F-E S-D |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not relevant

SECTION 15. Regulatory information

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

EU regulations

Major Accident Hazard SEVESO III
Legislation FLAMMABLE LIQUIDS
P5c
Quantity 1: 5.000 t
Quantity 2: 50.000 t

Occupational restrictions Take note of Dir 94/33/EC on the protection of young people at work.

Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

Substances of very high concern (SVHC) This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 3

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SECTION 16. Other information

Full text of H-Statements referred to under sections 2 and 3.

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

Training advice

Provide adequate information, instruction and training for operators.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.
Product name

109623
Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Labelling

Hazard pictograms



Signal word
Danger

Hazard statements

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.

Precautionary statements

Prevention

P210 Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P240 Ground/bond container and receiving equipment.

Response

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes.

Remove contact lenses, if present and easy to do. Continue rinsing.

Storage

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

EXPOSURE SCENARIO 1 (Industrial use)

1. Industrial use Reagent for analysis, Chemical production)

Sectors of end-use

- SU 3* Industrial uses: Uses of substances as such or in preparations at industrial sites
SU9 Manufacture of fine chemicals
SU 10 Formulation [mixing] of preparations and/ or re-packaging (excluding alloys)

Chemical product category

- PC19* Intermediate
PC21 Laboratory chemicals

Process categories

- PROC1* Use in closed process, no likelihood of exposure
PROC2 Use in closed, continuous process with occasional controlled exposure
PROC3 Use in closed batch process (synthesis or formulation)
PROC4 Use in batch and other process (synthesis) where opportunity for exposure arises
PROC5 Mixing or blending in batch processes for formulation of preparations and articles (multistage and/ or significant contact)
PROC8a Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at non-dedicated facilities
PROC8b Transfer of substance or preparation (charging/ discharging) from/ to vessels/ large containers at dedicated facilities
PROC9 Transfer of substance or preparation into small containers (dedicated filling line, including weighing)
PROC10 Roller application or brushing
PROC15 Use as laboratory reagent

Environmental Release Categories

- ERC1* Manufacture of substances
ERC2 Formulation of preparations
ERC4 Industrial use of processing aids in processes and products, not becoming part of articles
ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)
ERC6b Industrial use of reactive processing aids
-

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC1

Amount used

Daily amount per site (Msafe) 1.445 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 300

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 90 %

2.2 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Daily amount per site (Msafe) 144.508 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10
Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 300

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 87 %

2.3 Contributing scenario controlling environmental exposure for: ERC4

Amount used

Daily amount per site (Msafe) 20.574 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10
Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 300

Conditions and measures related to municipal sewage treatment plant

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 87 %

2.4 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe) 1.700 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10
Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 20
Emission or Release Factor: Air 2 %
Emission or Release Factor: Water 5 %
Emission or Release Factor: Soil 0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 87 %

2.5 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Daily amount per site (Msafe) 690 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10
Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 20
Emission or Release Factor: Air 0,1 %
Emission or Release Factor: Water 5 %

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Water
Emission or Release Factor: 0,025 %
Soil

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Municipal sewage treatment plant
Plant
Flow rate of sewage treatment 2.000 m3/d
plant effluent
Effectiveness (of a measure) 87 %

2.6 Contributing scenario controlling worker exposure for: PROC1, PROC2, PROC3, PROC4, PROC5, PROC8a, PROC8b, PROC9, PROC10, PROC15

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) High volatile liquid

Frequency and duration of use

Frequency of use 8 hours/day
Frequency of use 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

| CS | Use descriptor | Msafe | Compartment | RCR | Exposure Assessment Method |
|-----|----------------|---------------|----------------------|-----|----------------------------|
| 2.1 | ERC1 | 1445 kg/day | Fresh water | 1 | ECETOC TRA |
| | | 1445 kg/day | Marine water | 1 | ECETOC TRA |
| 2.2 | ERC2 | 144508 kg/day | Marine water | 1 | ECETOC TRA |
| 2.3 | ERC4 | 20574 kg/day | Fresh water | 1 | ECETOC TRA |
| | | 20574 kg/day | Marine water | 1 | ECETOC TRA |
| 2.4 | ERC6a | 1700 kg/day | Fresh water sediment | 1 | ECETOC TRA |
| 2.5 | ERC6b | 690 kg/day | Fresh water sediment | 1 | ECETOC TRA |

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
 Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Workers

| CS | Use descriptor | Exposure duration, route, effect | RCR | Exposure Assessment Method |
|-----|----------------|----------------------------------|---------|----------------------------|
| 2.6 | PROC1 | longterm, inhalative, systemic | < 0,001 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,005 | ECETOC TRA |
| | | longterm, combined, systemic | 0,01 | ECETOC TRA |
| 2.6 | PROC2 | longterm, inhalative, systemic | 0,005 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,002 | ECETOC TRA |
| | | longterm, combined, systemic | 0,01 | ECETOC TRA |
| 2.6 | PROC3 | longterm, inhalative, systemic | 0,013 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,001 | ECETOC TRA |
| | | longterm, combined, systemic | 0,01 | ECETOC TRA |
| 2.6 | PROC4 | longterm, inhalative, systemic | 0,010 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,011 | ECETOC TRA |
| | | longterm, combined, systemic | 0,02 | ECETOC TRA |
| 2.6 | PROC5 | longterm, inhalative, systemic | 0,025 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,001 | ECETOC TRA |
| | | longterm, combined, systemic | 0,03 | ECETOC TRA |
| 2.6 | PROC8a | longterm, inhalative, systemic | 0,025 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,002 | ECETOC TRA |
| | | longterm, combined, systemic | 0,03 | ECETOC TRA |
| 2.6 | PROC8b | longterm, inhalative, systemic | 0,008 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,011 | ECETOC TRA |
| | | longterm, combined, systemic | 0,02 | ECETOC TRA |
| 2.6 | PROC9 | longterm, inhalative, systemic | 0,025 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,011 | ECETOC TRA |
| | | longterm, combined, systemic | 0,04 | ECETOC TRA |
| 2.6 | PROC10 | longterm, inhalative, systemic | 0,025 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,022 | ECETOC TRA |
| | | longterm, combined, systemic | 0,05 | ECETOC TRA |
| 2.6 | PROC15 | longterm, inhalative, systemic | 0,005 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,001 | ECETOC TRA |
| | | longterm, combined, systemic | 0,01 | ECETOC TRA |

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.
Product name

109623
Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

EXPOSURE SCENARIO 2 (Professional use)

1. Professional use Reagent for analysis, Chemical production)

Sectors of end-use

SU 22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Chemical product category

PC21 Laboratory chemicals

Process categories

PROC15 Use as laboratory reagent

Environmental Release Categories

ERC2 Formulation of preparations

ERC6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2

Amount used

Daily amount per site (Msafe) 144.508 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d

Dilution Factor (River) 10

Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 300

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant

Flow rate of sewage treatment plant effluent 2.000 m3/d

Effectiveness (of a measure) 87 %

2.2 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe) 1.700 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d

Dilution Factor (River) 10

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 20
Emission or Release Factor: Air 2 %
Emission or Release Factor: Water 5 %
Emission or Release Factor: Soil 0,1 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 87 %

2.3 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Daily amount per site (Msafe) 690 kg

Environment factors not influenced by risk management

Flow rate 18.000 m3/d
Dilution Factor (River) 10
Dilution Factor (Coastal Areas) 100

Other given operational conditions affecting environmental exposure

Number of emission days per year 20
Emission or Release Factor: Air 0,1 %
Emission or Release Factor: Water 5 %
Emission or Release Factor: Soil 0,025 %

Conditions and measures related to municipal sewage treatment plant

Type of Sewage Treatment Plant Municipal sewage treatment plant
Flow rate of sewage treatment plant effluent 2.000 m3/d
Effectiveness (of a measure) 87 %

2.4 Contributing scenario controlling worker exposure for: PROC15

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109623
Product name Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Product characteristics

Concentration of the Substance in Mixture/Article Covers the percentage of the substance in the product up to 100 % (unless stated differently).
Physical Form (at time of use) High volatile liquid

Frequency and duration of use

Frequency of use 8 hours/day
Frequency of use 5 days/week

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor with local exhaust ventilation (LEV)

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

Additional good practice advice beyond the REACH Chemical Safety Assessment

Additional good practice advice Wear suitable gloves (tested to EN374) and eye protection.

3. Exposure estimation and reference to its source

Environment

| CS | Use descriptor | Msafe | Compartment | RCR | Exposure Assessment Method |
|-----|----------------|---------------|----------------------|-----|----------------------------|
| 2.1 | ERC2 | 144508 kg/day | Marine water | 1 | ECETOC TRA |
| 2.2 | ERC6a | 1700 kg/day | Fresh water sediment | 1 | ECETOC TRA |
| 2.3 | ERC6b | 690 kg/day | Fresh water sediment | 1 | ECETOC TRA |

Workers

| CS | Use descriptor | Exposure duration, route, effect | RCR | Exposure Assessment Method |
|-----|----------------|----------------------------------|-------|----------------------------|
| 2.4 | PROC15 | longterm, inhalative, systemic | 0,01 | ECETOC TRA |
| | | longterm, dermal, systemic | 0,001 | ECETOC TRA |
| | | longterm, combined, systemic | 0,01 | ECETOC TRA |

The default parameters and -efficiencies of the applied exposure assessment model were used for the calculation (unless stated differently).

4. Guidance to Downstream User to evaluate whether he works inside the boundaries set by the Exposure Scenario

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

| | |
|---------------|---|
| Catalogue No. | 109623 |
| Product name | Ethyl acetate for analysis EMSURE® ACS,ISO,Reag. Ph Eur |

Please refer to the following documents: ECHA Guidance on information requirements and chemical safety assessment Chapter R.12: Use descriptor system; ECHA Guidance for downstream users; ECHA Guidance on information requirements and chemical safety assessment Part D: Exposure Scenario Building, Part E: Risk Characterisation and Part G: Extending the SDS; VCI/Cefic REACH Practical Guides on Exposure Assessment and Communications in the Supply Chain; CEFIC Guidance Specific Environmental Release Categories (SPERCs).

For scaling of worker exposure assessments performed with ECETOC TRA, please consult the Merck tool ScIDeEx® at www.merckmillipore.com/scideex.

The branding on the header and/or footer of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in the document regarding the product remains unchanged and matches the product ordered. For further information please contact mlsbranding@sial.com.