

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 17.08.2018

Version 20.4

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

Catalogue No.	100921
Product name	Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur
REACH Registration Number	01-2119535785-29-XXXX
CAS-No.	60-29-7

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

Flammable liquid, Category 1, H224

Acute toxicity, Category 4, Oral, H302

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.

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100921

Product name

Diethyl ether 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

H224 Extremely flammable liquid and vapour.

H302 Harmful if swallowed.

H336 May cause drowsiness or dizziness.

EUH019 May form explosive peroxides.

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.

Storage

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

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H224 Extremely flammable liquid and vapour.

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Precautionary statements

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

Index-No. 603-022-00-4

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	(C ₂ H ₅) ₂ O	C ₄ H ₁₀ O (Hill)
Index-No.	603-022-00-4	
EC-No.	200-467-2	
Molar mass	74,12 g/mol	

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

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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Diethyl ether (>= 50 % - <= 100 %)

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

60-29-7	01-2119535785-29-XXXX	Flammable liquid, Category 1, H224 Acute toxicity, Category 4, H302 Specific target organ toxicity - single exposure, Category 3, H336
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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. Consult doctor if feeling unwell.

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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 with the eyelid held wide open. Call in ophthalmologist if necessary. 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.

4.2 Most important symptoms and effects, both acute and delayed

irritant effects, respiratory paralysis, Drowsiness, Unconsciousness, inebriation, euphoria, collapse, somnolence, ataxia (impaired locomotor coordination), Salivation, Coma, death

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO₂), Foam, Dry powder

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.

Vapours are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

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

5.3 Advice for firefighters

Special protective equipment for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

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Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

Remove container from danger zone and cool with water.

SECTION 6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid substance contact. Do not breathe vapours, aerosols. Keep away from heat and sources of ignition. Ensure adequate ventilation. 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. Chemizorb®). 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

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

Observe label precautions.

Advice on protection against fire and explosion

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

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Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

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

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

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Derived No Effect Level (DNEL)

Worker DNEL, acute	Systemic effects	inhalation	616 mg/m ³
Worker DNEL, longterm	Systemic effects	dermal	44 mg/kg Body weight
Worker DNEL, longterm	Systemic effects	inhalation	308 mg/m ³
Consumer DNEL, longterm	Systemic effects	dermal	15,6 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	54,5 mg/m ³
Consumer DNEL, longterm	Systemic effects	oral	15,6 mg/kg Body weight

Predicted No Effect Concentration (PNEC)

PNEC Fresh water	2 mg/l
PNEC Marine water	0,2 mg/l
PNEC Fresh water sediment	9,14 mg/kg
PNEC Marine sediment	0,914 mg/kg
PNEC Soil	0,66 mg/kg

8.2 Exposure controls

Engineering measures

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

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Hand protection

splash contact:

Glove material:	Viton (R)
Glove thickness:	0,70 mm
Break through time:	> 30 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 890 Vitoject® (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 AX (EN 371)

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

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Colour	colourless
Odour	characteristic
Odour Threshold	0,3 - 8,8 ppm
pH	No information available.
Melting point	-116,3 °C
Boiling point/boiling range	34,6 °C at 1.013 hPa
Flash point	-40 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1,7 %(V)
Upper explosion limit	36 %(V)
Vapour pressure	587 hPa at 20 °C
Relative vapour density	No information available.
Density	0,71 g/cm ³ at 20 °C
Relative density	No information available.

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Water solubility 69 g/l
at 20 °C

Partition coefficient: n-
octanol/water log Pow: 0,89
(experimental)
(Lit.) Bioaccumulation is not expected.

Auto-ignition temperature No information available.

Decomposition temperature No information available.

Viscosity, dynamic 0,23 mPa.s
at 20 °C

Explosive properties Not classified as explosive.

Oxidizing properties none

Peroxides May form explosive peroxides.

9.2 Other data

Ignition temperature 180 °C
Method: DIN 51794

SECTION 10. Stability and reactivity

10.1 Reactivity

Vapours may form explosive mixture with air.
Formation of peroxides possible.

10.2 Chemical stability

Sensitivity to light
Sensitive to air.

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Stabilizer

butyl hydroxytoluene (BHT)

10.3 Possibility of hazardous reactions

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

chromyl chloride, Peroxides

Risk of explosion with:

azides, halogens, halogen-halogen compounds, nonmetallic oxyhalides, Strong oxidizing agents, chromium(VI) oxide, halogen oxides, peroxi compounds, perchloric acid, perchlorates, Nitric acid, nitrating acid, Oxygen, Ozone, turpentine oils and/or turpentine substitutes, nitrates, metallic chlorides, salts of oxyhalogenic acids, nitrogen oxides, nonmetallic oxides, chromosulfuric acid, chlorates, hydrogen peroxide, permanganic acid

sulphuric acid, with, Nitric acid

sulfur, Risk of explosion during distillation.

Exothermic reaction with:

acid halides

10.4 Conditions to avoid

Warming.

10.5 Incompatible materials

rubber, various plastics

10.6 Hazardous decomposition products

Peroxides

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SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 1.215 mg/kg

(RTECS)

Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary oedema and pneumonitis.

Acute inhalation toxicity

Symptoms: mucosal irritations

Acute dermal toxicity

LD50 Rabbit: > 2.000 mg/kg

(ECHA)

Skin irritation

Rabbit

Result: No irritation

OECD Test Guideline 404

Dermatitis

Repeated exposure may cause skin dryness or cracking.

Eye irritation

Rabbit

Result: No eye irritation

OECD Test Guideline 405

Sensitisation

Sensitisation test: Mouse

Result: negative

Method: OECD Test Guideline 429

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Human experience

Result: negative

(Lit.)

Germ cell mutagenicity

Genotoxicity in vivo

Mouse

Red blood cells (erythrocytes)

Result: negative

Method: OECD Test Guideline 474

Genotoxicity in vitro

Ames test

Salmonella typhimurium

Result: negative

(IUCLID)

Mutagenicity (mammal cell test): chromosome aberration.

Human lymphocytes

Result: negative

Method: OECD Test Guideline 487

Mutagenicity (mammal cell test):

Mouse lymphoma test

Result: negative

Method: OECD Test Guideline 476

Carcinogenicity

This information is not available.

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

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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

Narcotic!

After absorption:

Salivation, euphoria, ataxia (impaired locomotor coordination), inebriation, collapse,

Unconsciousness, Coma

Cannot be excluded:

respiratory paralysis, death

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 *Leuciscus idus* (Golden orfe): 2.840 mg/l; 48 h
(ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 *Daphnia magna* (Water flea): 1.380 mg/l; 48 h
(IUCLID)

Toxicity to algae

static test EC50 *Desmodesmus subspicatus* (green algae): > 100 mg/l; 72 h
OECD Test Guideline 201

Toxicity to bacteria

static test EC50 activated sludge: 21.000 mg/l; 3 h
OECD Test Guideline 209

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

static test NOEC activated sludge: 42 mg/l; 3 h

OECD Test Guideline 209

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity)

semi-static test NOEC Daphnia magna (Water flea): > 100 mg/l; 21 d

OECD Test Guideline 211

12.2 Persistence and degradability

Biodegradability

Not readily biodegradable.

12.3 Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0,89

(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

Henry constant

124,6 Pa*m³/mol

Method: (experimental)

(Lit.) Distribution preferentially in air.

Discharge into the environment must be avoided.

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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 1155
14.2 Proper shipping name	DIETHYL ETHER
14.3 Class	3
14.4 Packing group	I
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 1155
14.2 Proper shipping name	DIETHYL ETHER
14.3 Class	3
14.4 Packing group	I
14.5 Environmentally hazardous	--
14.6 Special precautions for user	no

Sea transport (IMDG)

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

14.1 UN number UN 1155
14.2 Proper shipping name DIETHYL ETHER
14.3 Class 3
14.4 Packing group I
14.5 Environmentally hazardous --
14.6 Special precautions for user yes
EmS F-E S-D

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
P5a
Quantity 1: 10 t
Quantity 2: 50 t

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

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

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

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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.

H224 Extremely flammable liquid and vapour.
H302 Harmful if swallowed.
H336 May cause drowsiness or dizziness.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H224 Extremely flammable liquid and vapour.
H302 Harmful if swallowed.

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H336 May cause drowsiness or dizziness.

EUH019 May form explosive peroxides.

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.

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.

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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
SU 9 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

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2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC1, ERC4

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

Conditions and measures related to external treatment of waste for disposal

Disposal methods Dispose of as special waste in compliance with local and national regulations.

2.2 Contributing scenario controlling environmental exposure for: ERC2

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

Conditions and measures related to external treatment of waste for disposal

Disposal methods Dispose of as special waste in compliance with local and national regulations.

2.3 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe) 8.828 kg

Environment factors not influenced by risk management

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

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Other given operational conditions affecting environmental exposure

Number of emission days per year 20
Emission or Release Factor: Air 5 %
Emission or Release Factor: Water 2 %
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 2.000 m3/d
plant effluent
Effectiveness (of a measure) 89 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods Dispose of as hazardous waste in compliance with local and national regulations.

2.4 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Daily amount per site (Msafe) 3.534 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

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Flow rate of sewage treatment plant effluent	2.000 m3/d
Effectiveness (of a measure)	89 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.
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2.5 Contributing scenario controlling worker exposure for: PROC1, PROC2

Product characteristics

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

Frequency and duration of use

Frequency of use	8 hours/day
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Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
Remarks	Enclosed process

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.
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2.6 Contributing scenario controlling worker exposure for: PROC3, PROC4, PROC8b

Product characteristics

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

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Product name	Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Frequency and duration of use

Frequency of use	8 hours/day
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Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
Remarks	Enclosed process

Technical conditions and measures

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

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.
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2.7 Contributing scenario controlling worker exposure for: PROC8a

Product characteristics

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

Frequency and duration of use

Frequency of use	8 hours/day
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Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor with local exhaust ventilation (LEV)
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Technical conditions and measures

Provide a good standard of general or controlled ventilation (5 to 15 air changes per hour).

Organisational measures to prevent /limit releases, dispersion and exposure

Covers daily exposures up to 8 hours.

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Additional good practice advice beyond the REACH Chemical Safety Assessment

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

2.8 Contributing scenario controlling worker exposure for: PROC9

Product characteristics

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

Frequency and duration of use

Frequency of use 8 hours/day

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.

2.9 Contributing scenario controlling worker exposure for: PROC5, PROC10

Product characteristics

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

Frequency and duration of use

Frequency of use 8 hours/day

Other operational conditions affecting workers exposure

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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.

2.10 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

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

Frequency and duration of use

Frequency of use 8 hours/day

Other operational conditions affecting workers exposure

Outdoor / Indoor Indoor without 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

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.

100921

Product name

Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC1		All compartments	< 0,01	ECETOC TRA
2.1	ERC4		All compartments	< 0,01	ECETOC TRA
2.2	ERC2		All compartments	< 0,01	ECETOC TRA
2.3	ERC6a	8828 kg/day	Soil	1	ECETOC TRA
2.4	ERC6b	3534 kg/day	Soil	1	ECETOC TRA

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.5	PROC1	longterm, inhalative, systemic	0,10	ECETOC TRA
		longterm, dermal, systemic	0,03	ECETOC TRA
		longterm, combined, systemic	0,13	ECETOC TRA
2.5	PROC2	longterm, inhalative, systemic	0,10	ECETOC TRA
		longterm, dermal, systemic	0,03	ECETOC TRA
		longterm, combined, systemic	0,13	ECETOC TRA
2.6	PROC3	longterm, inhalative, systemic	0,98	ECETOC TRA
		longterm, dermal, systemic	0,01	ECETOC TRA
		longterm, combined, systemic	0,99	ECETOC TRA
2.6	PROC4	longterm, inhalative, systemic	0,01	ECETOC TRA
		longterm, dermal, systemic	0,30	ECETOC TRA
		longterm, combined, systemic	0,31	ECETOC TRA
2.6	PROC8b	longterm, inhalative, systemic	0,44	ECETOC TRA
		longterm, dermal, systemic	0,16	ECETOC TRA
		longterm, combined, systemic	0,60	ECETOC TRA
2.7	PROC8a	longterm, inhalative, systemic	0,49	ECETOC TRA
		longterm, combined, systemic	0,80	ECETOC TRA
		longterm, dermal, systemic	0,31	ECETOC TRA
2.8	PROC9	longterm, inhalative, systemic	0,20	ECETOC TRA
		longterm, dermal, systemic	0,02	ECETOC TRA
		longterm, combined, systemic	0,22	ECETOC TRA

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

2.9	PROC5	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,002	ECETOC TRA
		longterm, combined, systemic	0,25	ECETOC TRA
2.9	PROC10	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,031	ECETOC TRA
		longterm, combined, systemic	0,28	ECETOC TRA
2.10	PROC15	longterm, inhalative, systemic	0,49	ECETOC TRA
		longterm, dermal, systemic	0,01	ECETOC TRA
		longterm, combined, systemic	0,50	ECETOC TRA

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

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according to Regulation (EC) No. 1907/2006

Catalogue No.	100921
Product name	Diethyl ether 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.

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Catalogue No. 100921
Product name Diethyl ether 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

PC 21 Laboratory chemicals

Process categories

PROC 15 Use as laboratory reagent

Environmental Release Categories

ERC 2 Formulation of preparations

ERC 6a Industrial use resulting in manufacture of another substance (use of intermediates)

ERC 6b Industrial use of reactive processing aids

2. Contributing scenarios: Operational conditions and risk management measures

2.1 Contributing scenario controlling environmental exposure for: ERC2

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

Conditions and measures related to external treatment of waste for disposal

Disposal methods Dispose of as special waste in compliance with local and national regulations.

2.2 Contributing scenario controlling environmental exposure for: ERC6a

Amount used

Daily amount per site (Msafe) 8.828 kg

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Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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 5 %
Emission or Release Factor: Water 2 %
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 2.000 m3/d
plant effluent
Effectiveness (of a measure) 89 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods Dispose of as hazardous waste in compliance with local and national regulations.

2.3 Contributing scenario controlling environmental exposure for: ERC6b

Amount used

Daily amount per site (Msafe) 3.534 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 %

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Catalogue No.	100921
Product name	Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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)	89 %

Conditions and measures related to external treatment of waste for disposal

Disposal methods	Dispose of as hazardous waste in compliance with local and national regulations.
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2.4 Contributing scenario controlling worker exposure for: PROC15

Product characteristics

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

Frequency and duration of use

Frequency of use	8 hours/day
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Other operational conditions affecting workers exposure

Outdoor / Indoor	Indoor without local exhaust ventilation (LEV)
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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.
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3. Exposure estimation and reference to its source

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Catalogue No. 100921
Product name Diethyl ether for analysis EMSURE® ACS,ISO,Reag. Ph Eur

Environment

CS	Use descriptor	Msafe	Compartment	RCR	Exposure Assessment Method
2.1	ERC2		All compartments	< 0,01	ECETOC TRA
2.2	ERC6a	8828 kg/day	Soil	1	ECETOC TRA
2.3	ERC6b	3534 kg/day	Soil	1	ECETOC TRA

Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.4	PROC15	longterm, inhalative, systemic	0,5	ECETOC TRA
		longterm, dermal, systemic	0,008	ECETOC TRA
		longterm, combined, systemic	0,51	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

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).

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