

**SAFETY DATA SHEET**

according to Regulation (EC) No. 1907/2006

Revision Date 21.08.2017

Version 21.1

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

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

REACH Registration Number 01-2119457558-25-XXXX

CAS-No. 67-63-0

**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.

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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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.

## 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.

*Precautionary statements*

Prevention

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. 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.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

## Reduced labelling (≤125 ml)

*Hazard pictograms*



*Signal word*

Danger

*Precautionary statements*

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

*Index-No.* 603-117-00-0

## 2.3 Other hazards

None known.

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## SECTION 3. Composition/information on ingredients

### 3.1 Substance

Formula	CH <sub>3</sub> CH(OH)CH <sub>3</sub>	C <sub>3</sub> H <sub>8</sub> O (Hill)
Index-No.	603-117-00-0	
EC-No.	200-661-7	
Molar mass	60,1 g/mol	

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

*Chemical name (Concentration)*

CAS-No.	Registration number	Classification
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2-Propanol (<= 100 %)

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

67-63-0	01-2119457558-25-
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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.

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## 3.2 Mixture

Not applicable

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## 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.

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

irritant effects, Headache, somnolence, respiratory paralysis, Drowsiness, Dizziness, inebriation, narcosis, Unconsciousness, Coma

Drying-out effect resulting in rough and chapped skin.

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

No information available.

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## SECTION 5. Firefighting measures

### 5.1 Extinguishing media

*Suitable extinguishing media*

Foam, Carbon dioxide (CO<sub>2</sub>), Dry powder, Water

*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.

Vapours are heavier than air and may spread along floors.

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

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

Forms explosive mixtures with air at ambient temperatures.

## 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.

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## 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. Chemizorb®). Dispose of properly. Clean up affected area.

### 6.4 Reference to other sections

Indications about waste treatment see section 13.

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## SECTION 7. Handling and storage

### 7.1 Precautions for safe handling

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

### *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.

### *Hygiene measures*

Change contaminated clothing. Wash hands 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.

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## **SECTION 8. Exposure controls/personal protection**

### **8.1 Control parameters**

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## Derived No Effect Level (DNEL)

Worker DNEL, longterm	Systemic effects	inhalation	500 mg/m <sup>3</sup>
Worker DNEL, longterm	Systemic effects	dermal	888 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	inhalation	89 mg/m <sup>3</sup>
Consumer DNEL, longterm	Systemic effects	dermal	319 mg/kg Body weight
Consumer DNEL, longterm	Systemic effects	oral	26 mg/kg Body weight

## Predicted No Effect Concentration (PNEC)

PNEC Fresh water	140,9 mg/l
PNEC Fresh water sediment	552 mg/kg
PNEC Marine water	140,9 mg/l
PNEC Marine sediment	552 mg/kg
PNEC Soil	28 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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

## *Hand protection*

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,40 mm
Break through time:	> 480 min

splash contact:

Glove material:	polychloroprene
Glove thickness:	0,65 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 730 Camatril® -Velours (full contact), KCL 720 Camapren® (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](http://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.



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	109634
Product name	2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

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## SECTION 9. Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	alcohol-like
Odour Threshold	1,0 - 196,1 ppm
pH	at 20 °C neutral
Melting point	-89,5 °C
Boiling point/boiling range	82,4 °C at 1.013 hPa
Flash point	12 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	2 %(V)
Upper explosion limit	13,4 %(V)
Vapour pressure	43 hPa at 20 °C
Relative vapour density	2,07

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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Density 0,786 g/cm<sup>3</sup>  
at 20 °C

Relative density No information available.

Water solubility at 20 °C  
soluble

Partition coefficient: n-  
octanol/water log Pow: 0,05  
OECD Test Guideline 107  
Bioaccumulation is not expected.

Auto-ignition temperature No information available.

Decomposition temperature Distillable in an undecomposed state at normal pressure.

Viscosity, dynamic 2,2 mPa.s  
at 20 °C

Explosive properties Not classified as explosive.

Oxidizing properties none

## 9.2 Other data

Ignition temperature 425 °C  
Method: DIN 51794

Minimum ignition energy 0,65 mJ

Conductivity < 0,1 µS/cm

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## SECTION 10. Stability and reactivity

### 10.1 Reactivity

Formation of peroxides possible.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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:

Alkali metals, Alkaline earth metals, chromium(VI) oxide

Exothermic reaction with:

Oxidizing agents, Nitric acid, Aldehydes, Amines, fuming sulfuric acid, Iron, Aluminium, Chlorine, PHOSPHORUS TRICHLORIDE, Strong acids

Risk of explosion with:

chlorates, Phosgene, organic nitro compounds, hydrogen peroxide, nitrogen oxides, perchlorates

## 10.4 Conditions to avoid

Warming.

## 10.5 Incompatible materials

rubber, various plastics, oils

## 10.6 Hazardous decomposition products

Peroxides

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## SECTION 11. Toxicological information

### 11.1 Information on toxicological effects

#### *Acute oral toxicity*

LDLO human: 3.570 mg/kg

(RTECS)

LD50 Rat: 5.045 mg/kg

(RTECS)

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

#### *Acute inhalation toxicity*

LC50 Rat: 37,5 mg/l; 4 h ; vapour

OECD Test Guideline 403

Symptoms: Possible damages:, mucosal irritations

#### *Acute dermal toxicity*

LD50 Rabbit: 12.800 mg/kg

(RTECS)

#### *Skin irritation*

Rabbit

Result: No skin irritation

OECD Test Guideline 404

Drying-out effect resulting in rough and chapped skin.

#### *Eye irritation*

Rabbit

Result: Eye irritation

OECD Test Guideline 405

Causes serious eye irritation.

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## *Sensitisation*

Buehler Test Guinea pig

Result: negative

Method: OECD Test Guideline 406

## *Germ cell mutagenicity*

### *Genotoxicity in vivo*

In vivo micronucleus test

Mouse

male and female

Intraperitoneal injection

Bone marrow

Result: negative

Method: OECD Test Guideline 474

### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test

Result: negative

Method: OECD Test Guideline 476

### *Carcinogenicity*

Method: OECD Test Guideline 451

Did not show carcinogenic effects in animal experiments.

### *Reproductive toxicity*

No impairment of reproductive performance in animal experiments. (IUCLID)

### *Teratogenicity*

Did not show teratogenic effects in animal experiments. (IUCLID)

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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.

## *Repeated dose toxicity*

Rat

male and female

Inhalation

vapour

90 d

daily

NOAEL: 12,5 mg/l

OECD Test Guideline 413

Target Organs: Central nervous system

Subchronic toxicity

## *Aspiration hazard*

This information is not available.

## 11.2 Further information

After absorption:

Headache, Dizziness, inebriation, Unconsciousness, narcosis

Systemic effects:

After uptake of large quantities:

respiratory paralysis, Coma

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

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## SECTION 12. Ecological information

### 12.1 Toxicity

#### *Toxicity to fish*

flow-through test LC50 Pimephales promelas (fathead minnow): 9.640 mg/l; 96 h

US-EPA

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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### *Toxicity to daphnia and other aquatic invertebrates*

EC5 *E. sulcatum*: 4.930 mg/l; 72 h

(maximum permissible toxic concentration) (Lit.)

EC50 *Daphnia magna* (Water flea): 13.299 mg/l; 48 h

(IUCLID)

### *Toxicity to algae*

IC50 *Desmodesmus subspicatus* (green algae): > 1.000 mg/l; 72 h

(IUCLID)

### *Toxicity to bacteria*

EC5 *Pseudomonas putida*: 1.050 mg/l; 16 h

(Lit.)

## 12.2 Persistence and degradability

### *Biodegradability*

95 %; 21 d; aerobic

OECD Test Guideline 301E

Readily biodegradable

### *Theoretical oxygen demand (ThOD)*

2.400 mg/g

(Lit.)

### *Ratio BOD/ThBOD*

BOD5 49 %

(IUCLID)

### *Ratio COD/ThBOD*

96 %

(Lit.)

## 12.3 Bioaccumulative potential

### *Partition coefficient: n-octanol/water*

log Pow: 0,05

OECD Test Guideline 107

Bioaccumulation is not expected.

## 12.4 Mobility in soil

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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.

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## SECTION 13. Disposal considerations

### *Waste treatment methods*

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

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## SECTION 14. Transport information

### Land transport (ADR/RID)

14.1 UN number	UN 1219
14.2 Proper shipping name	ISOPROPANOL
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 1219
14.2 Proper shipping name	ISOPROPANOL
14.3 Class	3
14.4 Packing group	II
14.5 Environmentally hazardous	--

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# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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**14.6 Special precautions for user** no

## Sea transport (IMDG)

**14.1 UN number** UN 1219

**14.2 Proper shipping name** ISOPROPANOL

**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

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

Not relevant

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## 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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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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

A Chemical Safety Assessment has been carried out according to regulation (EC) No. 1907/2006 (REACH) for this substance.

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## 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.

### Labelling

*Hazard pictograms*



*Signal word*

Danger

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

---

## *Hazard statements*

H225 Highly flammable liquid and vapour.

H319 Causes serious eye irritation.

H336 May cause drowsiness or dizziness.

## *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](http://www.wikipedia.org).

## **Regional representation**

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

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*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. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## EXPOSURE SCENARIO 1 (Industrial use)

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### 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

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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## 2. Contributing scenarios: Operational conditions and risk management measures

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2.1 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 %.
Physical Form (at time of use)	High volatile liquid

### Frequency and duration of use

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

### 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.

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## 3. Exposure estimation and reference to its source

### Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634  
Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

## Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC1	longterm, inhalative, systemic	< 0,001	ECETOC TRA
		longterm, dermal, systemic	< 0,001	ECETOC TRA
		longterm, combined, systemic	< 0,001	
2.1	PROC2	longterm, inhalative, systemic	0,05	ECETOC TRA
		longterm, dermal, systemic	0,02	ECETOC TRA
		longterm, combined, systemic	0,052	
2.1	PROC3	longterm, inhalative, systemic	0,125	ECETOC TRA
		longterm, dermal, systemic	< 0,001	ECETOC TRA
		longterm, combined, systemic	0,125	
2.1	PROC4	longterm, inhalative, systemic	0,1	ECETOC TRA
		longterm, dermal, systemic	0,008	ECETOC TRA
		longterm, combined, systemic	0,108	
2.1	PROC5	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,15	ECETOC TRA
		longterm, combined, systemic	0,265	
2.1	PROC8a	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,015	ECETOC TRA
		longterm, combined, systemic	0,265	
2.1	PROC8b	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,008	ECETOC TRA
		longterm, combined, systemic	0,258	
2.1	PROC9	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,008	ECETOC TRA
		longterm, combined, systemic	0,258	
2.1	PROC10	longterm, inhalative, systemic	0,25	ECETOC TRA
		longterm, dermal, systemic	0,031	ECETOC TRA
		longterm, combined, systemic	0,281	
2.1	PROC15	longterm, inhalative, systemic	0,05	ECETOC TRA
		longterm, dermal, systemic	< 0,001	ECETOC TRA
		longterm, combined, systemic	0,05	

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. 109634

Product name 2-Propanol for analysis EMSURE® ACS,ISO,Reag. Ph Eur

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#### **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;

# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 109634

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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](http://www.merckmillipore.com/scideex).



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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## EXPOSURE SCENARIO 2 (Professional use)

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### 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

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### 2. Contributing scenarios: Operational conditions and risk management measures

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#### 2.1 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 5 days/week

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.

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## 3. Exposure estimation and reference to its source

### Environment

A chemical safety assessment was performed according REACH Article 14(3), Annex I, sections 3 (Environmental Hazard Assessment) and 4 (PBT/vPvB Assessment). As no hazard was identified, an exposure assessment and risk characterisation is not necessary (REACH Annex I section 5.0).

### Workers

CS	Use descriptor	Exposure duration, route, effect	RCR	Exposure Assessment Method
2.1	PROC15	longterm, inhalative, systemic	0,05	ECETOC TRA
		longterm, dermal, systemic	< 0,001	ECETOC TRA
		longterm, combined, systemic	0,05	

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

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## 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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