

SAFETY DATA SHEET

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

Product identifier

Catalogue No. 100984

Product name Isobutanol for analysis EMSURE® ACS, Reag. Ph Eur

REACH Registration Number A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. 78-83-1

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

Identified uses Reagent for analysis, Chemical production
For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

SECTION 2. Hazards identification

Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

Flammable liquid, Category 3, H226

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Specific target organ toxicity - single exposure, Category 3, Central nervous system, H336

Specific target organ toxicity - single exposure, Category 3, Respiratory system, H335

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

Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H226 Flammable liquid and vapour.

H315 Causes skin irritation.

H318 Causes serious eye damage.

H335 May cause respiratory irritation.

H336 May cause drowsiness or dizziness.

Precautionary statements

Prevention

P210 Keep away from heat.

P280 Wear eye protection.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

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

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

P313 Get medical advice/ attention.

Reduced labelling (≤ 125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H318 Causes serious eye damage.

Precautionary statements

P280 Wear eye protection.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P313 Get medical advice/ attention.

CAS-No. 78-83-1

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Substance

Formula	(CH ₃) ₂ CHCH ₂ OH (Hill)	C ₄ H ₁₀ O
EC-No.	201-148-0	
Molar mass	74.12 g/mol	

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

Chemical name (Concentration)

CAS-No. Registration number Classification

iso-butanol (<= 100 %)

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

78-83-1 *)

Flammable liquid, Category 3, H226

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Specific target organ toxicity - single exposure, Category 3, H336

Specific target organ toxicity - single exposure, Category 3, H335

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

Mixture

Not applicable

SECTION 4. First aid measures

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. Immediately 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.

Most important symptoms and effects, both acute and delayed

Irritation and corrosion, somnolence, Drowsiness, Cough, Shortness of breath

Risk of serious damage to eyes.

respiratory paralysis, Dizziness, Unconsciousness, narcosis, inebriation, Headache, Coma

Risk of corneal clouding.

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

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.

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 elevated temperatures.

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

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.

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

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.

Environmental precautions

Do not let product enter drains. Risk of explosion.

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.

Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

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.

Hygiene measures

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

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.

Recommended storage temperature see product label.

Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8. Exposure controls/personal protection

Control parameters

iso-butanol (78-83-1)

IN OEL	Time Weighted Average	50 ppm
	(TWA):	150 mg/m ³

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

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0.40 mm
Break through time:	480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0.11 mm
Break through time:	10 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 741 Dermatril® L (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

Information on basic physical and chemical properties

Form	liquid
Colour	colourless
Odour	alcohol-like
Odour Threshold	0.001 - 73.0 ppm

pH	7 at 80 g/l 20 °C
Melting point	-108 °C
Boiling point/boiling range	106 - 108 °C at 1,013 hPa Method: DIN 53171
Flash point	28 °C Method: c.c.
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	1.5 %(V)
Upper explosion limit	12 %(V)
Vapour pressure	12 hPa at 20 °C
Relative vapour density	2.55
Density	0.802 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	85 g/l at 20 °C

Conditions to avoid

Heating.

Incompatible materials

Aluminium, rubber, various plastics

Hazardous decomposition products

no information available

SECTION 11. Toxicological information

Information on toxicological effects

Acute oral toxicity

LD50 Rat: > 2,830 mg/kg

OECD Test Guideline 401

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

Acute inhalation toxicity

LC50 Rat: 24.6 mg/l; 4 h ; vapour

(IUCLID)

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

Acute dermal toxicity

LD50 Rat: 2,460 mg/kg

OECD Test Guideline 402

Skin irritation

Repeated or prolonged exposure may cause skin irritation and dermatitis, due to degreasing properties of the product.

Causes skin irritation.

Eye irritation

Risk of corneal clouding.
Causes serious eye damage.

Sensitisation

This information is not available.

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Salmonella typhimurium

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 respiratory irritation.

Target Organs: Respiratory system

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.

Further information

After absorption:

Headache, Dizziness, inebriation, Unconsciousness, narcosis

After uptake of large quantities:

Coma, respiratory paralysis

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

SECTION 12. Ecological information

Toxicity

Toxicity to fish

LC50 Pimephales promelas (fathead minnow): 1,430 mg/l; 96 h
(IUCLID)

Toxicity to daphnia and other aquatic invertebrates

EC5 E.sulcatum: 295 mg/l; 72 h
(Lit.)

EC50 Daphnia magna (Water flea): 1,439 mg/l; 48 h
DIN 38412
(IUCLID)

Toxicity to algae

IC50 Desmodesmus subspicatus (green algae): 1,250 mg/l; 48 h
(IUCLID)

Toxicity to bacteria

EC50 Photobacterium phosphoreum: 1,225 mg/l; 15 min
(IUCLID)

Persistence and degradability

Biodegradability

99 %; 14 d

OECD Test Guideline 301A

Readily biodegradable

> 90 %; 5 d

OECD Test Guideline 302B

Readily eliminated from water

Chemical Oxygen Demand (COD)

2,600 mg/g

(External MSDS)

Theoretical oxygen demand (ThOD)

2,600 mg/g

(Lit.)

Ratio BOD/ThBOD

BOD5 64 %

(Lit.)

Ratio COD/ThBOD

100 %

(Lit.)

Bioaccumulative potential

Partition coefficient: n-octanol/water

log Pow: 0.79 (25 °C)

OECD Test Guideline 107

Bioaccumulation is not expected.

Mobility in soil

No information available.

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.

Other adverse effects

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

Waste treatment methods

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

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 1212
14.2 Proper shipping name	ISOBUTANOL
14.3 Class	3
14.4 Packing group	III
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 1212
14.2 Proper shipping name	ISOBUTANOL
14.3 Class	3
14.4 Packing group	III
14.5 Environmentally hazardous	--

14.6 Special precautions for user no

Sea transport (IMDG)

14.1 UN number UN 1212

14.2 Proper shipping name ISOBUTANOL

14.3 Class 3

14.4 Packing group III

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

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

National legislation

Storage class 3

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.

H226	Flammable liquid and vapour.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

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End of msds