

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 1 of 12

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

Isobutanol > 99 % for analysis, ACS

REACH Registration Number: 01-2119484609-23-XXXX
CAS No: 78-83-1
Index No: 603-108-00-1
EC No: 201-148-0

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

Laboratory chemicals

Industrial uses: Uses of substances as such or in preparations at industrial sites

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

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: AnalytiChem GmbH
Street: Stempelstraße 6
Place: D-47167 Duisburg
Telephone: 0203/5194-0
E-mail: info@analytichem.de
Contact person: Abteilung Produktsicherheit
E-mail: produktsicherheit@analytichem.de
Internet: www.analytichem.de
Responsible Department: Abteilung Produktsicherheit

Telefax: 0203/5194-290
Telephone: 0203/5194-107/117

1.4. Emergency telephone number:

For Hazardous Materials [or Dangerous Goods] Incidents Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night Within USA and Canada: 1-800-424-9300 Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Further Information

No data available

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

Flam. Liq. 3; H226
Skin Irrit. 2; H315
Eye Dam. 1; H318
STOT SE 3; H335
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008****Signal word:** Danger**Pictograms:**

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 2 of 12

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

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P280 Wear protective gloves/protective clothing/eye protection/face protection/hearing protection.
- 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.

2.3. Other hazards

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

- Sum formula: C4H10O
- Molecular weight: 74.12 g/mol

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
78-83-1	butanol			100 %
	201-148-0	603-108-00-1	01-2119484609-23-XXXX	
	Flam. Liq. 3, Skin Irrit. 2, Eye Dam. 1, STOT SE 3, STOT SE 3; H226 H315 H318 H335 H336			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
	Specific Conc. Limits, M-factors and ATE		
78-83-1	201-148-0	butanol	100 %
	inhalation: LC50 = ca. 24,6 mg/l (vapours); dermal: LD50 = 2460 mg/kg; oral: LD50 = 3350 mg/kg		

Further Information

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 = 0.1 % (w/w).

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No data available

After inhalation

- Provide fresh air.
- Call a physician immediately.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 3 of 12

After contact with skin

Wash immediately with: Water
Take off immediately all contaminated clothing and wash it before reuse.
In case of skin irritation, consult a physician.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water.
Remove contact lenses, if present and easy to do. Continue rinsing.
Consult an ophthalmologist.

After ingestion

Observe risk of aspiration if vomiting occurs.
Call a physician immediately.

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

Irritant, corrosive
May cause drowsiness or dizziness., Cough
Dyspnoea, Risk of serious damage to eyes.
Respiratory complaints, Dizziness
Unconsciousness, Narcotic effects
Inebriation, Headache
Corneal opacity.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Foam
Carbon dioxide (CO₂)
Extinguishing powder

Unsuitable extinguishing media

no restriction

5.2. Special hazards arising from the substance or mixture

Combustible liquids
Hazardous combustion products
In case of fire may be liberated:
Carbon dioxide (CO₂) Carbon monoxide
In case of warming:
Vapours are heavier than air, spread along floors and form explosive mixtures with air.

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.
In case of fire and/or explosion do not breathe fumes.
Avoid contact with skin, eyes and clothes.

Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.
Move undamaged containers from immediate hazard area if it can be done safely.
Use water spray jet to protect personnel and to cool endangered containers.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Keep away from sources of ignition - No smoking.
This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 4 of 12

lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe).

Take action to prevent static discharges.

For non-emergency personnel

Provide adequate ventilation.

Use personal protection equipment.

Avoid contact with skin, eyes and clothes.

Remove persons to safety.

Emergency procedures

Do not breathe dust/fume/gas/mist/vapours/spray.

For emergency responders

Precautionary statements For emergency responders : Personal protection equipment: see section 8

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

Danger of explosion

6.3. Methods and material for containment and cleaning up

For containment

Cover drains.

Prevent spread over a wide area (e.g. by containment or oil barriers).

Collect in closed and suitable containers for disposal.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

For cleaning up

Clean contaminated articles and floor according to the environmental legislation.

Other information

Provide adequate ventilation.

Do not breathe dust/fume/gas/mist/vapours/spray.

Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

Use personal protection equipment.

Do not breathe gas/fumes/vapour/spray.

Provide adequate ventilation.

Read label before use.

Use extractor hood (laboratory).

Advice on protection against fire and explosion

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

Take precautionary measures against static discharges.

Advice on general occupational hygiene

Keep away from food, drink and animal feedingstuffs.

Further information on handling

Take off immediately all contaminated clothing and wash it before reuse.

Wash hands before breaks and after work.

Draw up and observe skin protection programme.

7.2. Conditions for safe storage, including any incompatibilities

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 5 of 12

Requirements for storage rooms and vessels

Keep container tightly closed and dry.

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

Further information on storage conditions

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

storage temperature +5°C - +30°C

7.3. Specific end use(s)

Laboratory chemicals

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
78-83-1	2-Methylpropan-1-ol	50	150		TWA (8 h)	
		75	225		STEL (15 min)	

DNEL/DMEL values

CAS No	Substance	Exposure route	Effect	Value
78-83-1	butanol			
Worker DNEL, long-term		inhalation	local	310 mg/m ³
Consumer DNEL, long-term		inhalation	local	55 mg/m ³

PNEC values

CAS No	Substance	Value
78-83-1	butanol	
Freshwater		0,4 mg/l
Freshwater (intermittent releases)		11 mg/l
Marine water		0,04 mg/l
Freshwater sediment		1,56 mg/kg
Marine sediment		0,156 mg/kg
Micro-organisms in sewage treatment plants (STP)		10 mg/l
Soil		0,076 mg/kg

8.2. Exposure controls

Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection

goggles

Face protection umbrella

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 6 of 12

recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

Protective gloves are recommended Company KCL GmbH, D-36124 Eichenzell, email: vertrieb@kcl.de With specification (test according to EN374):

By long-term hand contact

Trade name/designation: KCL 730 Camatril® Velours
Recommended material: NBR (Nitrile rubber) 0,4 mm
Wearing time with permanent contact: > 480 min

By short-term hand contact

Trade name/designation: KCL 720 Camapren®
Recommended material: CR (polychloroprene, chloroprene rubber) 0,65 mm
Wearing time with occasional contact (splashes): > 240 min

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).

Skin protection

Wear anti-static footwear and clothing
Wear fire resistant or flame retardant clothing.
Take off immediately all contaminated clothing and wash it before reuse.
Wash hands and face before breaks and after work and take a shower if necessary.

Respiratory protection

Wear breathing apparatus if exposed to vapours/dusts/aerosols.
Filtering device with filter or ventilator filtering device of type: A

Environmental exposure controls

Do not allow to enter into surface water or drains.
Danger of explosion

SECTION 9: Physical and chemical properties**9.1. Information on basic physical and chemical properties**

Physical state:	Liquid
Colour:	colourless
Odour:	like: Alcohol
Odour threshold:	No data available
Melting point/freezing point:	-108 °C
Boiling point or initial boiling point and boiling range:	108 °C
Flammability:	No data available
Lower explosion limits:	1,7 vol. %
Upper explosion limits:	12 vol. %
Flash point:	24 °C
Auto-ignition temperature:	400 °C
Decomposition temperature:	No data available
pH-Value (at 20 °C):	7 (80 g/l)
Viscosity / kinematic:	No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 7 of 12

Water solubility: (at 20 °C)	85 g/L
Solubility in other solvents No data available	
Dissolution rate:	No data available
Partition coefficient n-octanol/water:	No data available
Dispersion stability:	No data available
Vapour pressure:	No data available
Vapour pressure:	No data available
Density:	0,8016 g/cm ³
Relative density:	No data available
Bulk density:	No data available
Relative vapour density:	No data available
Particle characteristics:	No data available

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

In case of warming:

Vapours are heavier than air, spread along floors and form explosive mixtures with air.

Sustaining combustion:

Sustaining combustion

Self-ignition temperature

Solid:

No data available

Gas:

No data available

Oxidizing properties

No data available

Other safety characteristics

Evaporation rate:

No data available

Solvent separation test:

No data available

Solvent content:

No data available

Solid content:

No data available

Sublimation point:

No data available

Softening point:

No data available

Pour point:

No data available

Viscosity / dynamic:

4 mPa·s

(at 20 °C)

Flow time:

No data available

Further Information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

In case of warming:

Vapours may form explosive mixtures with air.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Reducing agent, Acid chlorides, inorganic;

Aluminium, Oxidising agent, strong;

Alkali metals, Alkaline earth metal

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 8 of 12

10.4. Conditions to avoid

Heat

10.5. Incompatible materials

Rubber articles
Plastic articles
Aluminium

10.6. Hazardous decomposition products

SECTION 5: Firefighting measures

Further information

No data available

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Toxicokinetics, metabolism and distribution

No data available

Acute toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
78-83-1	butanol				
	oral	LD50 mg/kg	3350	Rat	Study report (1993) EPA OTS 798.1175
	dermal	LD50 mg/kg	2460	Rabbit	Study report (1993) EPA OTS 798.1100
	inhalation (4 h) vapour	LC50 mg/l	ca. 24,6	Rat	AMA Arch. Ind. Hyg. Occ. Med. 10: 61-68 Rats were exposed to 8000 ppm of the tes

Irritation and corrosivity

Causes skin irritation.
Causes serious eye damage.
Repeated exposure may cause skin dryness or cracking.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

STOT-single exposure

May cause respiratory irritation. (butanol)
May cause drowsiness or dizziness. (butanol)

STOT-repeated exposure

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.
Observe risk of aspiration if vomiting occurs.

Information on likely routes of exposure

No data available

Specific effects in experiment on an animal

No data available

Additional information on tests

No data available

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 9 of 12

Practical experience

No data available

11.2. Information on other hazards

Endocrine disrupting properties

No data available

Other information

No data available

Further information

Irritant, corrosive

May cause drowsiness or dizziness., Cough

Dyspnoea, Risk of serious damage to eyes.

Respiratory complaints, Dizziness

Unconsciousness, Narcotic effects

Inebriation, Headache

Corneal opacity.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
78-83-1	butanol					
	Acute fish toxicity	LC50 mg/l	1430	96 h	Pimephales promelas	Environ Toxicol Chem 14: 1591-1605 (1995)
	Acute algae toxicity	ErC50 mg/l	1799	72 h	Pseudokirchneriella subcapitata	Study report (2007)
	Acute crustacea toxicity	EC50 mg/l	1100	48 h	Daphnia pulex	Environmental Toxicology and Chemistry 5
	Crustacea toxicity	NOEC	20 mg/l	21 d	Daphnia magna	Water Res. 23(4): 501-510 (1989)
						Method: The test was conducted in line w

12.2. Persistence and degradability

99 %; 14 d

OECD 301A

Readily biodegradable (according to OECD criteria).

12.3. Bioaccumulative potential

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
78-83-1	butanol	10

12.4. Mobility in soil

No data available

12.5. Results of PBT and vPvB assessment

This substance does not meet the PBT/vPvB criteria of REACH, annex XIII.

12.6. Endocrine disrupting properties

This substance does not have endocrine disrupting properties with respect to non-target organisms.

12.7. Other adverse effects

Do not allow to enter into surface water or drains.

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 10 of 12

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Waste disposal according to directive 2008/98/EC, covering waste and dangerous waste.

Send to a physico-chemical treatment facility under observation of official regulations.

Do not empty into drains.

Contaminated packaging

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number:	UN 1212
14.2. UN proper shipping name:	ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Classification code:	F1
Limited quantity:	5 L
Excepted quantity:	E1
Transport category:	3
Hazard No:	30
Tunnel restriction code:	D/E

Inland waterways transport (ADN)

14.1. UN number or ID number:	UN 1212
14.2. UN proper shipping name:	ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Classification code:	F1
Limited quantity:	5 L
Excepted quantity:	E1

Marine transport (IMDG)

14.1. UN number or ID number:	UN 1212
14.2. UN proper shipping name:	ISOBUTANOL (ISOBUTYL ALCOHOL)
14.3. Transport hazard class(es):	3
14.4. Packing group:	III
Hazard label:	3
Special Provisions:	-
Limited quantity:	5 L
Excepted quantity:	E1
EmS:	F-E, S-D

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number or ID number:	UN 1212
14.2. UN proper shipping name:	ISOBUTANOL
14.3. Transport hazard class(es):	3
14.4. Packing group:	III

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 11 of 12

Hazard label:	3	
Limited quantity Passenger:	10 L	
Passenger LQ:	Y344	
Excepted quantity:	E1	
IATA-packing instructions - Passenger:		355
IATA-max. quantity - Passenger:		60 L
IATA-packing instructions - Cargo:		366
IATA-max. quantity - Cargo:		220 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

No dangerous good in sense of this transport regulation.

14.7. Maritime transport in bulk according to IMO instruments

No dangerous good in sense of this transport regulation.

SECTION 15: Regulatory information**15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture****EU regulatory information**

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

Information according to 2012/18/EU (SEVESO III): P5c FLAMMABLE LIQUIDS

Additional information

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 = 0.1 % (w/w).

National regulatory information

Employment restrictions: Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC).

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

For this substance a chemical safety assessment has not been carried out.

SECTION 16: Other information**Changes**

This data sheet contains changes from the previous version in section(s): 12.

Abbreviations and acronyms

Flam. Liq: Flammable liquid

Skin Irrit: Skin irritation

Eye Dam: Eye damage

STOT SE: Specific target organ toxicity - single exposure

Relevant H and EUH statements (number and full text)

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.

Further Information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product

Safety Data Sheet

according to Regulation (EC) No 1907/2006

Isobutanol > 99 % for analysis, ACS

Revision date: 03.08.2023

Product code: 19926

Page 12 of 12

named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material. The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights.
The receiver of our product is singularly responsible for adhering to existing laws and regulations.