

**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 03.03.2023

Version number 1

Revision: 03.03.2023

### SECTION 1: Identification of the substance/mixture and of the company/undertaking

- **1.1 Product identifier**
- **Trade name:** *Isobutanol*
- **Chemical Identification:** *2-Methylpropan-1-ol*
- **Article number:** *148*
- **CAS Number:**  
*78-83-1*
- **EC number:**  
*201-148-0*
- **Index number:**  
*603-108-00-1*
- **Registration number** *01-2119484609-23*
- **1.2 Relevant identified uses of the substance or mixture and uses advised against**  
*No further relevant information available.*
- **Application of the substance / the mixture** *Chemical.*
- **1.3 Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
*Möller Chemie GmbH & Co. KG*  
*Bürgerkamp 1*  
*D-48565 Steinfurt*  
*Tel.: 02551/9340-0*  
*Fax: 02551/9340-60*
- **Further information obtainable from:** *Product safety department*
- **1.4 Emergency telephone number:**  
*Poison Control Center Mainz - 24 hour emergency service - Tel.: +49 (0) 6131/19240*

### SECTION 2: Hazards identification

- **2.1 Classification of the substance or mixture**
- **Classification according to Regulation (EC) No 1272/2008**



GHS02 flame

*Flam. Liq. 3 H226      Flammable liquid and vapour.*



GHS05 corrosion

*Eye Dam. 1 H318      Causes serious eye damage.*



GHS07

*Skin Irrit. 2 H315      Causes skin irritation.*

*STOT SE 3 H335-H336 May cause respiratory irritation. May cause drowsiness or dizziness.*

- **2.2 Label elements**
- **Labelling according to Regulation (EC) No 1272/2008**  
*The substance is classified and labelled according to the CLP regulation.*
- **Hazard pictograms**



GHS02



GHS05



GHS07

- **Signal word** *Danger*

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**· Hazard statements**

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

**· Precautionary statements**

- P303+P361+P353 *IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].*
- P305+P351+P338 *IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.*
- P310 *Immediately call a POISON CENTER/doctor.*
- P321 *Specific treatment (see on this label).*
- P362+P364 *Take off contaminated clothing and wash it before reuse.*
- P405 *Store locked up.*
- P501 *Dispose of contents/container in accordance with local/regional/national/international regulations.*

**· 2.3 Other hazards**

*The product does not contain any substance above the legal limits included on the list for endocrine disrupting properties established under Article 59(1) of Regulation (EC) No 1907/2006 or under Commission Delegated Regulation (EU) 2017/2100 or of Commission Regulation (EU) 2018/605 has endocrine disrupting properties.*

**· Results of PBT and vPvB assessment****· PBT:**

*The product does not contain any substances above legal limits that meet the criteria for PBT (persistent, bioaccumulative and toxic).*

**· vPvB:**

*The product does not contain any substances above legal limits that meet the criteria for vPvB (very persistent and very bioaccumulative).*

### SECTION 3: Composition/information on ingredients

**· 3.1 Substances****· CAS No. Description**

78-83-1 Isobutanol

**· Identification number(s)****· EC number: 201-148-0****· Index number: 603-108-00-1**

### SECTION 4: First aid measures

**· 4.1 Description of first aid measures**

- After inhalation:** *Supply fresh air; consult doctor in case of complaints.*
- After skin contact:** *Immediately wash with water and soap and rinse thoroughly.*
- After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*
- After swallowing:**  
*Rinse out mouth and then drink plenty of water.*  
*Get medical advice/attention.*
- 4.2 Most important symptoms and effects, both acute and delayed** *No further relevant information available.*
- 4.3 Indication of any immediate medical attention and special treatment needed**  
*No further relevant information available.*

### SECTION 5: Firefighting measures

**· 5.1 Extinguishing media**

- Suitable extinguishing agents:** *CO<sub>2</sub>, powder or water spray. Fight larger fire with alcohol resistant foam.*
- For safety reasons unsuitable extinguishing agents:** *Water with full jet*

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- **5.2 Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
Carbon monoxide  
carbon dioxide  
Vapors can form an explosive mixture with air.
- **5.3 Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
Cool endangered receptacles with water spray.  
Collect contaminated fire fighting water separately. It must not enter the sewage system.

### **SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**  
Wear protective equipment. Keep unprotected persons away.  
Avoid contact with skin, eyes, clothing.  
Avoid breathing vapours, mist or gas. Ensure adequate ventilation.  
Keep away from heat and sources of ignition.
- **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomaceous earth, acid binder, universal binder, sawdust).  
Ensure adequate ventilation.
- **6.4 Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

### **SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling** Ensure good ventilation/exhaustion at the workplace.
- **Information about fire - and explosion protection:**  
Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.
- **7.2 Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**  
Store in cool, dry conditions in tightly closed containers.
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:**  
Store in dry conditions.  
Keep container tightly sealed.
- **Storage class:** 3
- **7.3 Specific end use(s)** No further relevant information available.

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

- **8.1 Control parameters**
- **Ingredients with limit values that require monitoring at the workplace:** Not required.
- **DNELs**  
Worker  
Long-term exposure - systemic and local effects, inhalation: 310 mg/m<sup>3</sup>  
consumer  
Long-term exposure - systemic and local effects, inhalation: 55 mg/m<sup>3</sup>
- **PNECs**  
Fresh water: 0.4 mg/l  
Sea water: 0.04 mg/l

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sporadic release: 11 mg/l

Sediment (fresh water): 1.56 mg/kg

Sediment (seawater): 0.156 mg/kg

Soil: 0.0756 mg/kg

Sewage treatment plant: 10 mg/l

· **Additional information:** The lists valid during the making were used as basis.· **8.2 Exposure controls**· **Appropriate engineering controls** No further data; see item 7.· **Individual protection measures, such as personal protective equipment**· **Respiratory protection:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use self-contained respiratory protective device.

· **Hand protection**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

Butyl rubber, BR

Nitrile rubber, NBR

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye/face protection**

Tightly sealed goggles

· **Body protection:** Protective work clothing

### SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**· **General Information**

· <b>Colour:</b>	Colourless
· <b>Odour:</b>	Characteristic
· <b>Melting point/freezing point:</b>	-90 °C
· <b>Boiling point or initial boiling point and boiling range</b>	108 °C
· <b>Lower and upper explosion limit</b>	
· <b>Lower:</b>	1.2 Vol %
· <b>Upper:</b>	10.9 Vol %
· <b>Flash point:</b>	31 °C
· <b>Ignition temperature:</b>	400 °C
· <b>pH</b>	Not determined.
· <b>Viscosity:</b>	
· <b>Dynamic at 20 °C:</b>	3.103 mPas
· <b>Solubility</b>	
· <b>water at 20 °C:</b>	70 g/l
· <b>Vapour pressure at 20 °C:</b>	9.5 hPa

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· <b>Density and/or relative density</b>	
· <b>Density at 20 °C:</b>	0.8016 g/cm <sup>3</sup>
· <b>9.2 Other information</b>	
· <b>Appearance:</b>	
· <b>Form:</b>	Fluid
· <b>Important information on protection of health and environment, and on safety.</b>	
· <b>Explosive properties:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
· <b>Information with regard to physical hazard classes</b>	
· <b>Explosives</b>	Void
· <b>Flammable gases</b>	Void
· <b>Aerosols</b>	Void
· <b>Oxidising gases</b>	Void
· <b>Gases under pressure</b>	Void
· <b>Flammable liquids</b>	
Flammable liquid and vapour.	
· <b>Flammable solids</b>	Void
· <b>Self-reactive substances and mixtures</b>	Void
· <b>Pyrophoric liquids</b>	Void
· <b>Pyrophoric solids</b>	Void
· <b>Self-heating substances and mixtures</b>	Void
· <b>Substances and mixtures, which emit flammable gases in contact with water</b>	Void
· <b>Oxidising liquids</b>	Void
· <b>Oxidising solids</b>	Void
· <b>Organic peroxides</b>	Void
· <b>Corrosive to metals</b>	Void
· <b>Desensitised explosives</b>	Void

### SECTION 10: Stability and reactivity

- **10.1 Reactivity** No further relevant information available.
- **10.2 Chemical stability**  
The product is stable if the regulations / instructions for storage and handling are observed.
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **10.3 Possibility of hazardous reactions**  
Vapors can form an explosive mixture with air.  
Reacts with oxidising agents.
- **10.4 Conditions to avoid** Avoid all sources of ignition: heat, sparks, open flames.
- **10.5 Incompatible materials:** Strong oxidizing agents
- **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

### SECTION 11: Toxicological information

- **11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008**
- **Acute toxicity** Based on available data, the classification criteria are not met.

#### · LD/LC50 values relevant for classification:

Dermal	LD50	3.400 mg/kg (rabbit)
Inhalative	LC50/ 4h	>6.5 mg/l (rat)

- **Skin corrosion/irritation**  
Causes skin irritation.
- **Serious eye damage/irritation**  
Causes serious eye damage.

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- **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure**  
May cause respiratory irritation. May cause drowsiness or dizziness.
- **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.
- **11.2 Information on other hazards**
- **Endocrine disrupting properties** Substance is not listed.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:**  
Fish toxicity:  
LC50/96h: 1430 mg/l (*Pimephales promelas*)  
Aquatic invertebrates:  
EC50/48h: 1100 mg/l (*Daphnia pulex* (water flea))  
EC50/72h: 1799 mg/l (growth rate) (*Pseudokirchneriella subcapitata*)  
Bacteria / waste water:  
IC50/16 h: > 1000 mg/l (growth inhibition)
- **12.2 Persistence and degradability** Easily biodegradable
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** The product is not considered to be persistent, bioaccumulating nor toxic (PBT).
- **vPvB:** The product is not considered to be persistent or very bioaccumulative (vPvB).
- **12.6 Endocrine disrupting properties** For information on endocrine disrupting properties see section 11.
- **12.7 Other adverse effects**
- **Additional ecological information:**
- **General notes:**  
Water hazard class 1 (German Regulation) (Assessment by list): slightly hazardous for water  
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation** Disposal according to local regulations.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>· <b>14.1 UN number or ID number</b></li> <li>· <b>ADR, IMDG, IATA</b></li> </ul>                   | UN1212  |
| <ul style="list-style-type: none"> <li>· <b>14.2 UN proper shipping name</b></li> <li>· <b>ADR</b></li> <li>· <b>IMDG, IATA</b></li> </ul> | 1212 ISOBUTANOL (ISOBUTYL ALCOHOL)<br>ISOBUTANOL (ISOBUTYL ALCOHOL) |

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## · 14.3 Transport hazard class(es)

## · ADR



· Class 3 (F1) Flammable liquids.  
· Label 3

## · IMDG, IATA



· Class 3 Flammable liquids.  
· Label 3

## · 14.4 Packing group

· ADR, IMDG, IATA III

## · 14.5 Environmental hazards:

· Marine pollutant: No

## · 14.6 Special precautions for user

Warning: Flammable liquids.  
· Hazard identification number (Kemler code): 30  
· EMS Number: F-E,S-D  
· Stowage Category A

## · 14.7 Maritime transport in bulk according to IMO instruments

Not applicable.

## · Transport/Additional information:

## · ADR

· Limited quantities (LQ) 5L  
· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml  
· Transport category 3  
· Tunnel restriction code D/E

## · IMDG

· Limited quantities (LQ) 5L  
· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 1212 ISOBUTANOL (ISOBUTYL ALCOHOL), 3, III

## SECTION 15: Regulatory information

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

## · Directive 2012/18/EU

· Qualifying quantity (tonnes) for the application of lower-tier requirements 5.000 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 50.000 t

· REGULATION (EC) No 1907/2006 ANNEX XVII Conditions of restriction: 3, 40

· DIRECTIVE 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment – Annex II

Substance is not listed.

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- **REGULATION (EU) 2019/1148**
- **Annex I - RESTRICTED EXPLOSIVES PRECURSORS (Upper limit value for the purpose of licensing under Article 5(3))**  
Substance is not listed.
- **Annex II - REPORTABLE EXPLOSIVES PRECURSORS** Substance is not listed.
- **15.2 Chemical safety assessment:** A Chemical Safety Assessment has been carried out.

### **SECTION 16: Other information**

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- **Department issuing SDS:** Product safety department
- **Contact:** Mrs. Steyer
- **Abbreviations and acronyms:**  
*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*  
*ICAO: International Civil Aviation Organisation*  
*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*IATA: International Air Transport Association*  
*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*DNEL: Derived No-Effect Level (REACH)*  
*PNEC: Predicted No-Effect Concentration (REACH)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*Flam. Liq. 3: Flammable liquids – Category 3*  
*Skin Irrit. 2: Skin corrosion/irritation – Category 2*  
*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*  
*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*

EU