

## Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date: 05.11.2007

Revision: 18.03.2003

### 1 Identification of substance:

- **Product details:**
- **Trade name:** **ISO-butanol**
- **Application of the substance / the preparation** Solvents
- **Supplier/Manufacturer:**  
Penpet Petrochemical Trading GmbH  
Merkur-Park  
Sieker Landstrasse 126  
22143 Hamburg  
Germany  
Tel: +49 40 675 799 0  
Fax: +49 40 675 799 99 / 88
- **Email competent person:** angelika.torges@kft.de
- **Information department:** See supplier/manufacturer
- **Emergency information:** National Poisons Information Centre Tel.: +44 (0)870 6006266

### 2 Hazards identification

- **Hazard description:**



Xi Irritant

- **Information pertaining to particular dangers for man and environment:**

R 10 Flammable.  
R 37/38 Irritating to respiratory system and skin.  
R 41 Risk of serious damage to eyes.  
R 67 Vapours may cause drowsiness and dizziness.

- **Classification system:**

The classification was made according to the latest editions of the EU-lists, and expanded using company data and specialized literature.

### 3 Composition/information on ingredients

- **Chemical characterization:**
- **CAS No. Description:**  
78-83-1 2-methylpropan-1-ol
- **Identification number(s):**
- **EINECS Number:** 2011480
- **EU Number:** 603-004-00-6

### 4 First aid measures

- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**  
Remove victim from contaminated area. If breathing is difficult, give oxygen. If breathing stops, provide artificial respiration. Call a doctor.  
In case of unconsciousness, place patients on their side in a stable position for transportation.
- **After skin contact:**  
Immediately wash with water and soap and rinse thoroughly.  
If skin irritation continues, consult a doctor.
- **After eye contact:**  
Protect unharmed eye.

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- Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult an eye specialist immediately.
- **After swallowing:**
    - Rinse mouth with water.
    - Still drink water if vomiting occurs spontaneously.
    - Never give anything by mouth to a unconscious person.
    - Administer medicinal carbon
    - Do not administer milk or alcohol.
    - Seek medical treatment.
  - **Information for doctor:**
  - **The following symptoms may occur:**
    - Headache
    - Dizziness
    - Irritation of eyes and mucous membrane.
    - Redness of the skin
    - After swallowing:
      - Gastric or intestinal disorders.
      - Nausea
      - Vomiting
  - **Treatment:** In cases of irritation to the lungs, initial treatment with Dexametason metered aerosol.

### 5 Fire fighting measures

- **Suitable extinguishing agents:**
  - CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - Use fire fighting measures that suit the environment.
- **For safety reasons unsuitable extinguishing agents:** Direct jet water
- **Special hazards caused by the material, its products of combustion or resulting gases:**
  - Formation of toxic gases is possible during heating or in case of fire.
  - Dangerous decomposition product see chapter 10: stability and reactivity
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information:**
  - Heating leads to pressure increase entailing danger of bursting and explosion. Immediately cool neighbouring packages and containers with sprayed water and, if possible, remove them out of the danger zone
  - Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.
  - Collect contaminated fire fighting water separately. It must not enter the sewage system.

### 6 Accidental release measures

- **Person-related safety precautions:**



Wear protective equipment. Keep unprotected persons away.

- Ensure adequate ventilation
- Use respiratory protective device against the effects of fumes/dust/aerosol.
- Do not smoke - keep ignition sources away
- **Measures for environmental protection:**
  - Do not allow product to reach sewage system or any water course.
  - Do not allow to penetrate the ground/soil.
- **Measures for cleaning/collecting:**
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.

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### 7 Handling and storage

- **Handling**

- **Information for safe handling:**

Ensure good ventilation/exhaustion at the workplace.

Ensure good interior ventilation, especially at floor level. (Fumes are heavier than air).

Avoid inhalation of vapours.

Avoid contact with eyes and skin.

- **Information about protection against explosions and fires:**

Fumes can combine with air to form an explosive mixture.



Keep ignition sources away - Do not smoke.

Protect against electrostatic charges

- **Storage**

- **Requirements to be met by storerooms and receptacles:**

Store container tightly sealed at a cool and dry place with sufficient ventilation.

Provide solvent resistant, sealed floor.

Unsuitable material for receptacle: aluminium

Suitable material for receptacles and pipes: Stainless steel.

Steel

- **Information about storage in one common storage facility:**

Store away from foodstuffs.

Store away from feed.

Follow regulations for flammable liquids.

- **Further information about storage conditions:** Keep receptacle tightly sealed.

- **Storage class** 3A Flammable Liquids

### 8 Exposure controls and personal protection

- **Additional information about design of technical systems:**

Install appropriate mechanical ventilation.

Keep away from open flames and other ignition sources.

Protect against electrostatic charges.

- **Components with limit values that require monitoring at the workplace:**

**2-Methyl-1-propanol**

WEL (Great Britain) Short-term value: 231 mg/m<sup>3</sup>, 75 ppm

Long-term value: 154 mg/m<sup>3</sup>, 50 ppm

- **Additional information:** The lists that were valid during the creation were used as basis.

- **Personal protective equipment**

- **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Avoid contact with the eyes and skin.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Do not inhale gases / fumes / aerosols.

Use skin protection cream for skin protection.

- **Breathing equipment:**

Not necessary if room is well-ventilated.

In case of unintentional release of the substance, exceeding the occupational exposure limit value:



In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

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Short term filter device:

Filter A

**Protection of hands:**

Chemical resistant gloves

Check the permeability prior to each renewed use of the glove.

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

After use of gloves apply skin-cleaning agents and skin cosmetics.

**Material of gloves:**

Polychloroprene rubber (CR)

Nitrile rubber, NBR

Butyl rubber, BR

Fluorocarbon rubber (FKM)

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.

**Not suitable are gloves made of the following materials:**

Natural rubber, NR

PVC gloves

**Eye protection:** Tightly sealed goggles.

**Body protection:**

Flame retarding, antistatic protective clothing.

Selection of protective clothing is subject to the specific kind of work and the corresponding risk potential.

### 9 Physical and chemical properties:

**General Information**

<b>Form:</b>	Fluid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Alcohol-like
<b>Change in condition:</b>	
<b>Melting point/Melting range:</b>	-108°C
<b>Boiling point/Boiling range:</b>	108°C
<b>Flash point:</b>	24°C
<b>Ignition temperature:</b>	390°C
<b>Danger of explosion:</b>	Product is not explosive. However, formation of explosive air/vapour mixtures are possible.
<b>Explosion limits:</b>	
<b>Lower:</b>	1.7 Vol %
<b>Upper:</b>	12 Vol %
<b>Vapour pressure at 20°C:</b>	12 hPa
<b>Density at 20°C:</b>	0.8016 g/cm <sup>3</sup>
<b>Solubility in / Miscibility with Water at 20°C:</b>	100 g/l
<b>pH-value (80 g/l) at 20°C:</b>	7
<b>Segregation coefficient (n-octanol/water):</b>	0.79 log POW
<b>Viscosity:</b>	
<b>dynamic at 20°C:</b>	3.95 mPas

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### 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.
- **Materials to be avoided:**
  - Strong oxidants
  - Aluminium
- **Dangerous reactions:**
  - Forms explosive gas mixture with air
  - Reacts with light alloys to form hydrogen
- **Dangerous products of decomposition:**
  - In the case of fire or at high temperatures the formation of the following decomposition products is possible.
  - Carbon monoxide and carbon dioxide

### 11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**
  - Oral LD<sub>50</sub> 2460 mg/kg (rat)
  - Dermal LD<sub>50</sub> 4200 mg/kg (rabbit)
  - Inhalative LC<sub>01/4h</sub> 24.6 mg/l (rat)
- **Primary irritant effect:**
  - **on the skin:** Irritant to skin and mucous membranes.
  - **on the eye:** Strong irritant with the danger of severe eye injury.
- **Sensitization:** No sensitizing effects known.

### 12 Ecological information

- **Information about elimination (persistence and degradability):**
- **Other information:** More than 70 % biodegradable.
- **Behaviour in environmental systems:**
- **Mobility and bioaccumulation potential:** Bioaccumulation is not to be expected (log P o/w < 1)
- **Ecotoxicological effects:**
- **Aquatic toxicity:**
  - EC<sub>01</sub> 350 mg/l (algae)
  - 280 mg/l (pseudomonas putida)
  - LC<sub>50</sub> 1220 mg/l (daphnia magna)
- **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.
  - Danger to drinking water is possible if large quantities leak into the ground or into water course.

### 13 Disposal considerations

- **Product:**
- **Recommendation:**



Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Must be specially treated adhering to official regulations.

- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.

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### 14 Transport information

**· Land transport ADR/RID (cross-border)**


- **ADR/RID class:** 3 (F1) Flammable liquids.
- **Danger code (Kemler):** 30
- **UN-Number:** 1212
- **Packaging group:** III
- **Label:** 3
- **Description of goods:** Isobutanol (Isobutyl alcohol)
- **Remarks:** Limited quantity: 5l per inner packaging, 30 kg gross per packaging unit

**· Maritime transport IMDG:**


- **IMDG Class:** 3
- **UN Number:** 1212
- **Label:** 3
- **Packaging group:** III
- **EMS Number:** F-E,S-D
- **Marine pollutant:** No
- **Proper shipping name:** ISOBUTANOL (ISOBUTYL ALCOHOL)

**· Air transport ICAO-TI and IATA-DGR:**


- **ICAO/IATA Class:** 3
- **UN/ID Number:** 1212
- **Label:** 3
- **Packaging group:** III
- **Proper shipping name:** ISOBUTANOL (ISOBUTYL ALCOHOL)
- **Remarks:**
  - Packing Instructions:
  - For Limited Quantities: Y309 (Max Net Qty/Pkg: 10 l)
  - Passenger and Cargo Aircraft: 309 (Max Net Qty/Pkg: 60 l)
  - Cargo Aircraft only: 310(Max Net Qty/Pkg: 220 l)

### 15 Regulations

**· Markings according to EC guidelines:**

The product has been classified and marked in accordance with EU Directives / Ordinance on Hazardous Materials "EC-labelling"

**· Code letter and hazard designation of product:**


Xi Irritant

**· Risk phrases:**

10 Flammable.

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- 37/38 Irritating to respiratory system and skin.
- 41 Risk of serious damage to eyes.
- 67 Vapours may cause drowsiness and dizziness.

- **Safety phrases:**

- 7/9 Keep container tightly closed and in a well-ventilated place.
- 13 Keep away from food, drink and animal feedingstuffs.
- 26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- 37/39 Wear suitable gloves and eye/face protection.
- 46 If swallowed, seek medical advice immediately and show this container or label.

- **National regulations**

- **Information about limitation of use:** Restrictions on juvenile employment must be observed.

- **Technical guidance (air):**

- **Class Share in %**

- III 100.0

- **Water hazard class:** Water hazard class 1 (Assessment by list): slightly hazardous for water.

### 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 MSDS:**

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