

## Safety Data Sheet

according to 1907/2006/EC, Article 31

Printing date: 27.11.2007

Revision: 27.11.2007

### 1 Identification of substance:

**Product details:****Trade name:** n-butanol**Application of the substance / the preparation** Solvents**Supplier/Manufacturer:**

Penpet Petrochemical Trading GmbH

Merkur-Park

Sieker Landstrasse 126

22143 Hamburg

Germany

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**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:**

Xn Harmful

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

R 10 Flammable.

R 22 Harmful if swallowed.

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:**

71-36-3 butan-1-ol

**Identification number(s):****EINECS Number:** 200-751-6**EU Number:** 603-004-00-6

### 4 First aid measures

**General information:**

Immediately remove any clothing soiled by the product.

Symptoms of poisoning may occur even after several hours; therefore medical observation is suggested for at least 48 hours after the accident.

**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.

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- **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.  
Rinse the eyes with open eyelids for 10 - 15 minutes with water. Then consult an eye specialist immediately.
- **After swallowing:**  
Rinse mouth with water.  
Do not induce vomiting.  
If vomiting occurs spontaneously:  
Hold the head of the casualty low with the body in a prone position in order to avoid aspiration.  
Administer medicinal carbon  
Never give anything by mouth to a unconscious person.  
Inform doctor. Do not give milk or oils.
- **Information for doctor:**
- **The following symptoms may occur:**  
Cough  
Headache  
Dizziness  
Drowsiness  
Redness of the skin  
Irritation of eyes and mucous membrane.
- **Treatment:**  
Symptomatic treatment  
In cases of irritation to the lungs, initial treatment with Dexametason metered aerosol.

### 5 Fire fighting measures

- **Suitable extinguishing agents:**  
Use fire fighting measures that suit the environment.  
CO<sub>2</sub>, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **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:**  
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.  
Cool endangered receptacles with water spray.

### 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:**  
Ensure adequate ventilation.

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Absorb with non-combustible material like sand, soil or diatomite.  
Dispose contaminated material as waste according to item 13.  
Send for recovery or disposal in suitable receptacles.

### 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).  
Prevent formation of aerosols.  
Keep away from heat and direct sunlight.  
Avoid inhalation of vapours.  
Avoid contact with eyes and skin.  
Use solvent-proof equipment.  
Do not smoke. Keep ignition sources away.

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

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.

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

Store away from foodstuffs.  
Store away from feed.  
Follow regulations for flammable liquids.  
Store separately from:  
Explosives (1)  
Compressed, liquefied and pressurized gas (2A)  
Flammable solids (4.1A and 4.1B)  
Substances which, in contact with water, emit flammable gases (4.3)  
Substances liable to spontaneous combustion (4.2)  
Oxidizing substances (5.1)  
Infectious substances (6.2)  
Organic peroxides (5.2)  
Non-combustible toxic substances (6.1B)

**· 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:****71-36-3 butan-1-ol**

WEL (Great Britain) Short-term value: 154 mg/m<sup>3</sup>, 50 ppm  
Sk

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

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- **Personal protective equipment**
- **General protective and hygienic measures:**
  - Keep away from foodstuffs, beverages and feed.
  - Do not store food in the working area.
  - Wash hands before breaks and at the end of work.
  - Apply solvent resistant skin cream before beginning work.
  - Do not inhale gases / fumes / aerosols.
  - Avoid contact with the skin.
  - Immediately remove all soiled and contaminated clothing
  - Do not eat or drink while working.
  - Use skin protection cream for skin protection.
  - Provide eye bath.
- **Breathing equipment:**
  - Use respirator filter unit with gas filter DIN EN 141 Type A (colour coding brown):
  - Up to 0.1 Vol.% class 1;
  - up to 0.5 Vol.% class 2; up to 1 Vol.% class 3;
  - above 1% and if conditions are unclear, use respirator equipment which is independent of the ambient air.
- **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.
  - Preventive skin protection by use of skin-protecting agents is recommended.
  - After use of gloves apply skin-cleaning agents and skin cosmetics.
- **Material of gloves:**
  - Nitrile rubber, NBR
  - Butyl rubber, BR
  - Fluorocarbon rubber (Viton)
  - 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:**
  - Penetration time: > 8 hours
  - 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.

### 9 Physical and chemical properties:

#### · General Information

<b>Form:</b>	Fluid
<b>Colour:</b>	Colourless
<b>Odour:</b>	Alcohol-like

#### · Change in condition:

<b>Melting point/Melting range:</b>	-89°C
<b>Boiling point/Boiling range:</b>	116-118°C

· **Flash point:** 35°C

· **Ignition temperature:** 340°C

· **Danger of explosion:** Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

#### · Explosion limits:

<b>Lower:</b>	1.5 Vol %
<b>Upper:</b>	9.4 Vol %

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- Vapour pressure at 20°C: 6.7 hPa
- Density at 20°C: 0.81 g/cm<sup>3</sup>
- Solubility in / Miscibility with Water at 20°C: 77 g/l
- pH-value (70 g/l) at 20°C: 7
- Segregation coefficient (n-octanol/water): 0.88 log POW
- Viscosity: dynamic at 20°C: 2.95 mPas

### 10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used and stored according to specifications.
- **Materials to be avoided:**
  - Alkali metals
  - Alkaline-earth metals
  - Strong oxidants
- **Dangerous reactions:** Explosive reaction or ignition with strong oxidants.
- **Dangerous products of decomposition:** No dangerous decomposition products known

### 11 Toxicological information

- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**
  - Oral LD<sub>50</sub> 790 mg/kg (rat)
  - Dermal LD<sub>50</sub> 3400 mg/kg (rabbit)
  - Inhalative LC<sub>50</sub>/4 h > 18 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.
- **Additional toxicological information:**
  - Inhalation of concentrated vapours as well as oral intake will lead to anaesthesia-like conditions and headache, dizziness, etc.
  - Inhalation of high vapour concentrations may cause irritation of eyes, nose and respiratory tract.

### 12 Ecological information

- **Information about elimination (persistence and degradability):**
- **Other information:** The product is biodegradable.
- **Behaviour in environmental systems:**
- **Mobility and bioaccumulation potential:** Bioaccumulation is not to be expected (log P o/w < 1)
- **Ecotoxic effects:**
- **Aquatic toxicity:**
  - EC<sub>50</sub>/48h 1983 mg/l (daphnia magna)
  - IC<sub>50</sub>/72h > 500 mg/l (des)
  - LC<sub>50</sub>/96h 1200 mg/l (leuciscus idus)
- **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.

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### 13 Disposal considerations

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



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

Disposal according to instructions of local authorities.

- **European waste catalogue:**

07 01 04 other organic solvents, washing liquids and mother liquors

- **Uncleaned packagings:**

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

### 14 Transport information

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



- **ADR/RID class:** 3 (F1) Flammable liquids.
- **Danger code (Kemler):** 30
- **UN-Number:** 1120
- **Packaging group:** III
- **Label:** 3
- **Description of goods:** 1120 BUTANOLS
- **Remarks:** Limited quantity: 5l per inner packaging, 30 kg gross per packaging unit

- **Maritime transport IMDG:**



- **IMDG Class:** 3
- **UN Number:** 1120
- **Label:** 3
- **Packaging group:** III
- **EMS Number:** F-E,S-D
- **Marine pollutant:** No
- **Proper shipping name:** BUTANOLS

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



- **ICAO/IATA Class:** 3
- **UN/ID Number:** 1120
- **Label:** 3
- **Packaging group:** III
- **Proper shipping name:** BUTANOLS

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- **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:**  
 Xn Harmful
- **Risk phrases:**
  - 10 Flammable.
  - 22 Harmful if swallowed.
  - 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:**  
 Employment restrictions concerning pregnant and lactating women must be observed.  
 Restrictions on juvenile employment must be observed.
- **Technical guidance (air):**
- **Class Share in %**
- **NK 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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