

**1 Identification of substance****Product details**

Trade name

**(R)-(-)-3-Methyl-2-butanol**

Stock number:

L11008

Manufacturer/Supplier:

Alfa Aesar GmbH & Co.KG  
Benzstrasse 3  
D-76185 Karlsruhe / GermanyE-mail: gcat@matthey.com  
www.alfa-chemcat.com

Informing department:

Product safety department.

Emergency information:

Giftnotruf Universität Mainz / Poison Information Center Mainz  
www.giftinfo.uni-mainz.de Telefon:+49(0)6131/19240**2 Hazards identification**

Hazard designation:



Xn Harmful

Information pertaining to particular dangers for man and environment

At long or repeated contact with skin it may cause dermatitis due to the degreasing effect of the solvent.  
R 10 Flammable.  
R 20 Harmful by inhalation.  
R 37 Irritating to respiratory system.  
R 66 Repeated exposure may cause skin dryness or cracking.

GHS label elements

**Warning**

H226 - Flammable liquid and vapour.

**Warning**H332 - Harmful if inhaled.  
H335 - May cause respiratory irritation.

Prevention:

EUH066 - Repeated exposure may cause skin dryness or cracking.  
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.  
P241 Use explosion-proof electrical/ventilating/lighting/equipment.  
P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

Response:

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.

Storage:

P405 Store locked up.

Disposal:

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**3 Composition/information on ingredients**

Chemical characterization:

Designation: (CAS#)

Identification number(s):

Index number:

(R)-(-)-3-Methyl-2-butanol (CAS# 1572-93-6): 100%

603-006-00-7

**4 First aid measures**

After inhalation

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

After skin contact

Seek immediate medical advice.  
Instantly wash with water and soap and rinse thoroughly.

After eye contact

Seek immediate medical advice.  
Rinse opened eye for several minutes under running water. Then consult doctor.

After swallowing

Seek immediate medical advice.

**5 Fire fighting measures**

Suitable extinguishing agents

CO2, extinguishing powder or water jet. Fight larger fires with water jet or alcohol-resistant foam.

Special hazards caused by the material, its products of combustion or flue gases:

Can be released in case of fire:  
Carbon monoxide and carbon dioxide  
Wear self-contained breathing apparatus.  
Wear full protective suit.

Protective equipment:

**6 Accidental release measures**

Person-related safety precautions:

Wear protective equipment. Keep unprotected persons away.

Measures for environmental protection:

Measures for cleaning/collecting:

Ensure adequate ventilation  
Keep away from ignition sources  
Do not allow material to be released to the environment without proper governmental permits.  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose of contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Keep away from ignition sources.  
See Section 7 for information on safe handling  
See section 8 for information on personal protection equipment.  
See Section 13 for information on disposal.

Additional information:

**7 Handling and storage**

Handling

Information for safe handling:

Keep containers tightly sealed.  
Store in cool, dry place in tightly closed containers.  
Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.  
Protect against electrostatic charges.  
Fumes can combine with air to form an explosive mixture.

Storage

Requirements to be met by storerooms and containers:

No special requirements.

Information about storage in one common storage facility:

Store away from oxidizing agents.

Further information about storage conditions:

Keep container tightly sealed.  
Store in cool, dry conditions in well sealed containers.

Trade name **(R)-(-)-3-Methyl-2-butanol**

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**8 Exposure controls and personal protection**

|  |  |
|--|--|
| <b>Additional information about design of technical systems:</b>                 | Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.  |
| <b>Components with critical values that require monitoring at the workplace:</b> | Not required.  |
| <b>Additional information:</b>   | No data  |
| <b>Personal protective equipment</b>   | The usual precautionary measures should be adhered to in handling the chemicals.   |
| <b>General protective and hygienic measures</b>                                  | Keep away from foodstuffs, beverages and food.<br>Instantly remove any soiled and impregnated garments.<br>Wash hands during breaks and at the end of the work.<br>Use breathing protection with high concentrations.<br>Check protective gloves prior to each use for their proper condition. |
| <b>Breathing equipment:</b>  | 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.  |
| <b>Protection of hands:</b>  | Impervious gloves  |
| <b>Material of gloves</b>  | Not determined   |
| <b>Penetration time of glove material</b>  | Safety glasses   |
| <b>Eye protection:</b>   | Face protection  |
| <b>Body protection:</b>  | Protective work clothing.  |

**9 Physical and chemical properties:****General Information**

|   |                        |
|---|------------------------|
| <b>Form:</b>                            | Liquid                 |
| <b>Colour:</b>                          | Colourless             |
| <b>Smell:</b>                           | Not determined         |
| <b>Change in condition</b>              |                        |
| <b>Melting point/Melting range:</b>     | Not determined         |
| <b>Boiling point/Boiling range:</b>     | 112°C                  |
| <b>Sublimation temperature / start:</b> | Not determined         |
| <b>Flash point:</b>                     | 26°C                   |
| <b>Ignition temperature:</b>            | Not determined         |
| <b>Decomposition temperature:</b>       | Not determined         |
| <b>Critical values for explosion:</b>   |                        |
| <b>Lower:</b>                           | Not determined         |
| <b>Upper:</b>                           | Not determined         |
| <b>Steam pressure:</b>                  | Not determined         |
| <b>Density at 20°C</b>                  | 0.81 g/cm <sup>3</sup> |

**10 Stability and reactivity**

|  |  |
|--|--|
| <b>Thermal decomposition / conditions to be avoided:</b> | No decomposition if used and stored according to specifications. |
| <b>Materials to be avoided:</b>                          | Oxidizing agents   |
| <b>Dangerous reactions:</b>                              | No dangerous reactions known                                     |
| <b>Dangerous products of decomposition:</b>              | Carbon monoxide and carbon dioxide                               |

**11 Toxicological information**

|  |   |
|--|---|
| <b>Acute toxicity:</b>                       |   |
| <b>Primary irritant effect:</b>              | Irritant for skin and mucous membranes.   |
| <b>on the skin:</b>                          | Irritant effect.  |
| <b>on the eye:</b>                           | No sensitizing effect known.  |
| <b>Sensitization:</b>                        | To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.                       |
| <b>Additional toxicological information:</b> | No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH. |

**12 Ecological information:**

|   |   |
|---|---|
| <b>Additional ecological information:</b> |   |
| <b>General notes:</b>                     | Water hazard class 1 (Self-assessment): slightly hazardous for water.<br>Do not allow undiluted product or large quantities of it to reach ground water, water bodies or sewage system.<br>Do not allow material to be released to the environment without proper governmental permits. |

**13 Disposal considerations**

|                              |   |
|------------------------------|---|
| <b>Product:</b>              |   |
| <b>Recommendation</b>        | Consult state, local or national regulations for proper disposal.<br>Hand over to disposers of hazardous waste.<br>Must be specially treated under adherence to official regulations. |
| <b>Uncleaned packagings:</b> |   |
| <b>Recommendation:</b>       | Disposal must be made according to official regulations.  |

**14 Transport information****Land transport ADR/RID and GGVS/GGVE (cross-border/domestic)**

|                              |                           |
|------------------------------|---------------------------|
| <b>ADR/RID-GGVS/E Class:</b> | 3 (F1) Flammable liquids. |
| <b>Kemler Number:</b>        | 30                        |
| <b>UN-Number:</b>            | 1105                      |
| <b>Packaging group:</b>      | III                       |
| <b>Label</b>                 | 3                         |
| <b>Designation of goods:</b> | 1105 PENTANOLS            |

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**Safety Data Sheet**  
according to 1907/2006/EC, Article 31

Printing date 22.08.2010

Revision: 22.08.2010

Trade name **(R)-(-)-3-Methyl-2-butanol**

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Tunnel restriction code D/E

Maritime transport IMDG/GGVSea:



IMDG/GGVSea Class: 3  
 UN Number: 1105  
 Label: 3  
 Packaging group: III  
 Marine pollutant: No  
 Correct technical name: PENTANOLS

Air transport ICAO-TI and IATA-DGR:



ICAO/IATA Class: 3  
 UN/ID Number: 1105  
 Label: 3  
 Packaging group: III  
 Correct technical name: PENTANOLS

UN "Model Regulation": UN1105, PENTANOLS, 3, III

**15 Regulatory information**

Designation according to EC guidelines:

Code letter and hazard designation of product:



Xn Harmful

Risk phrases:

10 Flammable.  
 20 Harmful by inhalation.  
 37 Irritating to respiratory system.  
 66 Repeated exposure may cause skin dryness or cracking.

Safety phrases:

46 If swallowed, seek medical advice immediately and show this container or label.

National regulations

Information about limitation of use:

For use only by technically qualified individuals.  
 Employment restrictions concerning young persons must be observed.

Water hazard class:

Water hazard class 1 (Self-assessment): slightly hazardous for water.

**16 Other information:**

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

Department issuing data specification sheet: Health, Safety and Environmental Department.

Contact: Zachariah Holt

Abbreviations and acronyms: ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)  
 RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

CAS: Chemical Abstracts Service (division of the American Chemical Society)