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

1.1 Product identifiers
   - Product name: 3-Methyl-1-butanol
   - Product Number: 309435
   - Brand: Sigma-Aldrich
   - Index-No.: 603-006-00-7
   - REACH No.: A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.
   - CAS-No.: 123-51-3

1.2 Relevant identified uses of the substance or mixture and uses advised against
   - Identified uses: Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet
   - Company: Sigma-Aldrich Chemie BV
     Stationsplein 4
     3331 LL ZWIJNDRECHT
     NETHERLANDS
   - Telephone: +31 78-620-5411
   - Fax: +31 78-620-5421
   - E-mail address: eurtechserv@sial.com

1.4 Emergency telephone number
   - Emergency Phone #: +(31)-858880596 (CHEMTREC)
     112 (Alarmnummer)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture
   - Classification according to Regulation (EC) No 1272/2008
     Flammable liquids (Category 3), H226
     Acute toxicity, Inhalation (Category 4), H332
     Skin irritation (Category 2), H315
     Eye irritation (Category 2), H319
     Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335

   For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 Label elements
   - Labelling according Regulation (EC) No 1272/2008
     Pictogram: Flammable, Warning
Hazard statement(s)

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Precautionary statement(s)

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear eye protection/ face protection.
P304 + P340 + P312 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P337 + P313 If eye irritation persists: Get medical advice/ attention.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplemental Hazard Statements

none

2.3 Other hazards
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

SECTION 3: Composition/information on ingredients

3.1 Substances

Synonyms: Isoamyl alcohol
Isopentyl alcohol

Formula: C₅H₁₂O
Molecular weight: 88.15 g/mol
CAS-No.: 123-51-3
EC-No.: 204-633-5
Index-No.: 603-006-00-7

Hazardous ingredients according to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Methylbutan-1-ol</td>
<td>Flam. Liq. 3; Acute Tox. 4; Skin Irrit. 2; Eye Irrit. 2; STOT SE 3; H226, H332, H315, H319, H335</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>123-51-3</td>
<td></td>
</tr>
<tr>
<td>EC-No.</td>
<td>204-633-5</td>
<td></td>
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<tr>
<td>Index-No.</td>
<td>603-006-00-7</td>
<td></td>
</tr>
</tbody>
</table>

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance.

If inhaled
If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.
In case of eye contact
Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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
Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2 Special hazards arising from the substance or mixture
Carbon oxides

5.3 Advice for firefighters
Wear self-contained breathing apparatus for firefighting if necessary.

5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
For personal protection see section 8.

6.2 Environmental precautions
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up
Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13).

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.
Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities
Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Storage class (TRGS 510): Flammable liquids

7.3 Specific end use(s)
Apart from the uses mentioned in section 1.2 no other specific uses are stipulated
SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

Appropriate engineering controls
Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection
Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

Skin protection
Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0,4 mm
Break through time: 480 min
Material tested: Camatri® (KCL 730 / Aldrich Z677442, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0,11 mm
Break through time: 30 min
Material tested: Dermatri® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Body Protection
Complete suit protecting against chemicals, Flame retardant antistatic protective clothing., The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Respiratory protection
Where risk assessment shows air-purifying respirators are appropriate use a full-face respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.
SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance  Form: liquid, clear
               Colour: colourless
b) Odour  No data available
c) Odour Threshold  No data available
d) pH  5.6 at 25 g/l at 20 °C
e) Melting point/freezing point  Melting point/range: -117 °C - lit.
f) Initial boiling point and boiling range  130 °C - lit.
g) Flash point  43 °C - closed cup
h) Evaporation rate  No data available
i) Flammability (solid, gas)  No data available
j) Upper/lower flammability or explosive limits  Upper explosion limit: 9 %(V)
               Lower explosion limit: 1.2 %(V)
k) Vapour pressure  3 hPa at 20 °C
               23.6 hPa at 50 °C
l) Vapour density  3.04 - (Air = 1.0)
m) Relative density  0.809 g/cm3 at 25 °C
n) Water solubility  soluble
o) Partition coefficient: n-octanol/water  log Pow: 1.35 at 23 °C
p) Auto-ignition temperature  335 °C at 1.013 - 1.017 hPa
q) Decomposition temperature  No data available
r) Viscosity  5.32 mm²/s at 20 °C
s) Explosive properties  No data available
t) Oxidizing properties  No data available

9.2 Other safety information

Bulk density  808 kg/m³
Relative vapour density  3.04 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity  No data available

10.2 Chemical stability  Stable under recommended storage conditions.
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions  No data available

10.4 Conditions to avoid  Heat, flames and sparks.
10.5 **Incompatible materials**  
Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents

10.6 **Hazardous decomposition products**  
Other decomposition products - No data available  
In the event of fire: see section 5

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Acute toxicity**

LD50 Oral - Rat - male and female - > 5.000 mg/kg  
(OECD Test Guideline 401)

LC0 Inhalation - Rat - male - 7 h - 11,05 mg/l  
(OECD Test Guideline 403)

LD50 Dermal - Rabbit - male - 3.216 mg/kg

**Skin corrosion/irritation**

Skin - Rabbit  
Result: Irritating to skin. - 24 h

**Serious eye damage/eye irritation**

Eyes - Rabbit  
Result: Eye irritation

**Respiratory or skin sensitisation**

in vivo assay - Guinea pig  
Result: Does not cause skin sensitisation.  
(OECD Test Guideline 406)

**Germ cell mutagenicity**

No data available

Hamster fibroblast  
Result: negative

OECD Test Guideline 474  
Mouse - male and female  
Result: negative

**Carcinogenicity**

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

**Specific target organ toxicity - repeated exposure**

No data available

**Aspiration hazard**

No data available

**Additional Information**

Repeated dose Rat - male and female - Oral - NOAEL : 1.250 mg/kg - OECD Test Guideline 408  
RTECS: EL5425000

prolonged or repeated exposure can cause:, Nausea, Headache, Vomiting. To the best of our knowledge,  
the chemical, physical, and toxicological properties have not been thoroughly investigated.
SECTION 12: Ecological information

12.1 Toxicity
Toxicity to fish  static test LC50 - Oncorhynchus mykiss (rainbow trout) - 700 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates  static test EC50 - Daphnia magna (Water flea) - 255 mg/l - 48 h (DIN 38412)
Toxicity to algae  static test EC50 - Desmodesmus subspicatus (Scenedesmus subspicatus) - 274 mg/l - 96 h

12.2 Persistence and degradability
Biodegradability  aerobic - Exposure time 27 d
Result: 84% - Readily biodegradable (OECD Test Guideline 301F)

12.3 Bioaccumulative potential
No data available

12.4 Mobility in soil
No data available

12.5 Results of PBT and vPvB assessment
This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

12.6 Other adverse effects
No data available

SECTION 13: Disposal considerations

13.1 Waste treatment methods
Product
Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging
Dispose of as unused product.

SECTION 14: Transport information

14.1 UN number
ADR/RID: 1105  IMDG: 1105  IATA: 1105

14.2 UN proper shipping name
ADR/RID:  PENTANOLS  IMDG: PENTANOLS  IATA: Pentanols

14.3 Transport hazard class(es)
ADR/RID: 3  IMDG: 3  IATA: 3

14.4 Packaging group
ADR/RID: III  IMDG: III  IATA: III

14.5 Environmental hazards
ADR/RID: no  IMDG Marine pollutant: no  IATA: no

14.6 Special precautions for user
No data available
SECTION 15: Regulatory information

This safety datasheet complies with the requirements of Regulation (EC) No. 453/2010.

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

15.2 Chemical Safety Assessment
For this product a chemical safety assessment was not carried out

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.
H335 May cause respiratory irritation.

Further information
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