SIGMA-ALDRICH

Material Safety Data Sheet

Version 4.5
Revision Date 02/01/2013
Print Date 06/28/2013

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: Isoamyl alcohol
Product Number: W205702
Brand: Aldrich
Supplier: Sigma-Aldrich
3000 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 800-325-5332
Fax: +1 800-325-5302
Emergency Phone #: (314) 776-6555
Preparation Information: Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview
OSHA Hazards
Combustible Liquid, Target Organ Effect, Irritant

Target Organs
Central nervous system

GHS Classification
Flammable liquids (Category 3)
Acute toxicity, Inhalation (Category 4)
Acute toxicity, Dermal (Category 5)
Skin irritation (Category 2)
Eye irritation (Category 2A)

GHS Label elements, including precautionary statements

Pictogram
Signal word Warning
Hazard statement(s)
H226 Flammable liquid and vapour.
H313 May be harmful in contact with skin.
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H332 Harmful if inhaled.

Precautionary statement(s)
P205 + P301 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

HMIS Classification
Health hazard: 2
Chronic Health Hazard: 1

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms: 3-Methyl-1-butanol
ISO Name: Isoamyl alcohol
ISO Symbol: Isoamyl alcohol
Formula: C8H12O
Molecular Weight: 126.19 gmol

Component
CAS-No.
EC-No.
Index-No.

3-Methylbutanol-1-C8
122-61-3
204-633-5
603-006-00-7

4. FIRST AID MEASURES

General advice
Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

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.

5. FIREFIGHTING MEASURES

Suitable extinguishing media
For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Special protective equipment for firefighters
Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products
Hazardous decomposition products formed under fire conditions. - Carbon oxides.
Hazardous decomposition products formed under fire conditions. - Nature of decomposition products not known.

Further information
Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES

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Further information
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Personal precautions
Use personal protective equipment. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

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

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).

7. HANDLING AND STORAGE

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.

Conditions for safe storage
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.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Methylbutan-1-ol</td>
<td>123-51-3</td>
<td>TWA</td>
<td>100 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td>Remarks</td>
<td>Eye &amp; Upper Respiratory tract irritation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEL</td>
<td>125 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eye &amp; Upper Respiratory tract irritation</td>
<td>TWA</td>
<td>100 ppm</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
<td></td>
</tr>
<tr>
<td>The value in mg/m³ is approximate.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TWA</td>
<td>100 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ST</td>
<td>125 ppm</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Personal protective equipment
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).

Hand 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.

Full contact
Material: Nitrile rubber
Minimum layer thickness: 0.4 mm
Break through time: 480 min
Material tested: Cammfill® (KCL 730 / Aldrich Z877742, Size M)

Splash contact
Material: Nitrile rubber
Minimum layer thickness: 0.11 mm
Break through time: 30 min
Material tested: Cammfill® (KCL 740 / Aldrich Z877727, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (06659) 87500, 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 specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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

Skin and 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 substances at the specific workplace.

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

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Form: liquid, clear
Colour: colourless

Safety data
pH: 5.6 to 25 g/l at 20 °C (60 °F)
Melting point/freezing point: -171 °C (-277 °F) - lit.
Boiling point: 130 °C (266 °F) - lit.
Flash point: 43 °C (110 °F) - closed cup
Ignition temperature: 340 °C (644 °F)
Auto-ignition temperature: no data available
Lower explosion limit: 1.2 % (V)
Upper explosion limit: 9 % (V)
Vapour pressure: 3 hPa (21 mmHg) at 20 °C (68 °F)
23.6 hPa (17.7 mmHg) at 50 °C (122 °F)
Density: 0.809 g/cm³ at 25 °C (77 °F)
Water solubility: soluble
Partition coefficient: log Pow: 1.28 n-octanol/water
Relative vapour density: 3.04 (Air = 1.0)
Odour: no data available
Odour Threshold: no data available
Evaporation rate: no data available
10. STABILITY AND REACTIVITY

Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
Heat, flames and sparks.

Materials to avoid
Strong oxidizing agents, Acid chlorides, Acid anhydrides, Reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions: Carbon oxides
Hazardous decomposition products formed under fire conditions: Nature of decomposition products not known.
Other decomposition products: no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity
Oral LD50
LD50 Oral - rat: > 5,000 mg/kg

Inhalation LC50
LC50 Inhalation - rat - male and female: 6 h: > 14 mg/l

Dermal LD50
LD50 Dermal - rabbit: > 3,000 mg/kg

Other information on acute toxicity
no data available

Skin corrosion/irritation
Skin - rabbit: Skin irritation

Serious eye damage/eye irritation
Eyes - rabbit: Eye irritation

Respiratory or skin sensitisation
no data available

Germ cell mutagenicity
no data available

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.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity
no data available

Teratogenicity
no data available

Specific target organ toxicity - single exposure (Globally Harmonized System)
May cause respiratory irritation.

Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects
Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Ingestion: May be harmful if swallowed.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.

Signs and Symptoms of Exposure
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.

Synergistic effects
no data available

Additional information
RTECS: EL5425000

12. ECOLOGICAL INFORMATION

Toxicity
Toxicity to daphnia: EC50 - Daphnia magna (Water flea): 260 mg/l - 48 h
and other aquatic invertebrates
Toxicity to algae: EC50 - Desmodesmus subspecies (green algae): 490 mg/l - 72 h

Persistence and degradability
Biodegradability: Result: > 70% - Readily biodegradable.

Bioaccumulative potential
no data available

Mobility in soil
no data available

PBT and vPvB assessment
no data available

Other adverse effects
no data available

13. DISPOSAL CONSIDERATIONS

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. Contact a licensed professional waste disposal service to dispose of this material.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

DOT (US)
UN number: 1105 Class: 3
Proper shipping name: Pentanis
Marine pollutant: No
Pesticide Inhalation Hazard: No

Aldrich - W205702
Delivery 08401330329-000010 Purchase Order PRISM-AD-08
Page 5 of 7
IMDG
UN number: 1105 Class: 3 Packing group: III EMS-No: F-E, S-D
Proper shipping name: PENTANOLS
Marine pollutant: No

IATA
UN number: 1105 Class: 3 Packing group: III
Proper shipping name: Pentanois

15. REGULATORY INFORMATION
OSHA Hazards
Combustible Liquid, Target Organ Effect, Inhaling

SARA 302 Components
SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components
SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards
Fire Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components
3-Methylbutan-1-ol CAS-No. 123-51-3 Revision Date 2007-03-01

Pennsylvania Right To Know Components
3-Methylbutan-1-ol CAS-No. 123-51-3 Revision Date 2007-03-01

New Jersey Right To Know Components
3-Methylbutan-1-ol CAS-No. 123-51-3 Revision Date 2007-03-01

California Prop. 65 Components
This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

16. OTHER INFORMATION
Further information
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The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.