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

1.1. Product identifier

Product form: Substance
Trade name: Methyl Isobutyl Carbinol
Chemical name: 4-methylpentan-2-ol, methyl isobutyl carbinol
EC Index-No.: 603-008-00-8
EC-No.: 203-551-7
CAS-No.: 108-11-2
REACH registration No: 01-2119473979-13-0004
Type of product: Pure substance
Formula: C6H14O
Synonyms: 1,3-dimethyl-1-butanol / 1,3-Dimethylbutanol / 2-methyl-4-pentanol / 2-methylpentan-4-ol / 2-pentanol, 4-methyl- / 3-MIC / 4-dimethyl-2-butanol / 4-methyl-2-amyl alcohol / 4-Methyl-2-pentylalkohol / 4-methylpentan-2-ol / 4-methylpentanol-2 / 4-methylpentan-2-oli / alcohol méthylamylique / isobutilmetilcarbinolo / Isobutylmethylcarbinol / isobutylmethylmethanol / MAOH / methyl isobutyl carbinol / methlylamyl alcohol / Methyisobutylcarbinol / Methylpentanol / MIBC / MIC
Product group: Trade product
BIG no: 10221

1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1. Relevant identified uses

Use of the substance/mixture: organic synthesis, brake fluids
Use of the substance/mixture: Solvent

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Supplier: Monument Chemical
Monument Chemical
16717 Jacintoport Blvd.
77015 Houston, TX - USA
T (281) 452-5951 - F (281) 457-1127
sds@monumentchemical.com - www.monumentchemical.com

Only Representative: Monument Chemical B.V.B.A.
Ketenislaan 3
B-9130 Kallo - Belgium
T +32 3 570 28 11
sds@monumentchemical.com - www.monumentchemical.com

1.4. Emergency telephone number

Emergency number: 24 HR CHEMTREC: 1-800-424-9300; 24 HR Emergency Assistance: 1-832-376-2026

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]
Flammable liquids, Category 3 H226
Serious eye damage/eye irritation, Category H319 2
Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation H335
Full text of H statements: see section 16
Specific concentration limits: (C >= 25) STOT SE 3, H335

Adverse physicochemical, human health and environmental effects
Flammable liquid and vapour. May cause respiratory irritation. Causes serious eye irritation.
2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP):

- GHS02
- GHS07

Signal word (CLP): Warning

Hazard statements (CLP):
- H226 - Flammable liquid and vapour.
- H319 - Causes serious eye irritation.
- H335 - May cause respiratory irritation.

Precautionary statements (CLP):
- P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 - Keep container tightly closed.
- P240 - Ground and bond container and receiving equipment.
- P241 - Use explosion-proof electrical, lighting, ventilating equipment.
- P261 - Avoid breathing dust, fume, gas, mist, spray, vapours.
- P264 - Wash hands, forearms and face thoroughly after handling.
- P271 - Use only outdoors or in a well-ventilated area.
- P280 - Wear protective gloves, eye protection, face protection.
- P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water.
- P304+P340 - IF INHALED: Remove person to fresh air and keep comfortable for breathing. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P312 - Call a POISON CENTRE or doctor if you feel unwell.
- P313 - If eye irritation persists: Get medical advice/attention.
- P370+P378 - In case of fire: Use alcohol resistant foam, carbon dioxide (CO2), dry extinguishing powder, Water spray to extinguish.
- P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
- P403+P235 - Store in a well-ventilated place. Keep cool.
- P405 - Store locked up.
- P401 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.1. Substances

Substance type: Mono-constituent

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>%</th>
<th>Classification according to Regulation (EC) No. 1272/2008 [CLP]</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-methylpentan-2-ol, methyl isobutyl carbinol</td>
<td>(CAS-No.) 108-11-2 (EC-No.) 203-551-7 (EC Index-No.) 603-008-00-8 (REACH-no) 01-2119473979-13-0004</td>
<td>&gt;= 99</td>
<td>Flam. Liq. 3, H226 Eye Irrit. 2, H319 STOT SE 3, H335</td>
</tr>
</tbody>
</table>

Specific concentration limits:

<table>
<thead>
<tr>
<th>Name</th>
<th>Product identifier</th>
<th>Specific concentration limits</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-methylpentan-2-ol, methyl isobutyl carbinol</td>
<td>(CAS-No.) 108-11-2 (EC-No.) 203-551-7 (EC Index-No.) 603-008-00-8 (REACH-no) 01-2119473979-13-0004</td>
<td>(C &gt;= 25) STOT SE 3, H335</td>
</tr>
</tbody>
</table>

Full text of H-statements: see section 16

3.2. Mixtures

Not applicable
**SECTION 4: First aid measures**

### 4.1. Description of first aid measures

**First-aid measures general**

**First-aid measures after inhalation**
Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Call a poison center or a doctor if you feel unwell.

**First-aid measures after skin contact**
Rinse with water. Soap may be used. Take victim to a doctor if irritation persists. Rinse skin with water/shower. Take off immediately all contaminated clothing.

**First-aid measures after eye contact**
Rinse immediately with plenty of water. Remove contact lenses, if present and easy to do. Continue rinsing. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

**First-aid measures after ingestion**
Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Victim is fully conscious: immediately induce vomiting. Induce vomiting by giving a 0.9 % saline solution. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Take the container/vomit to the doctor/hospital. Doctor: gastric lavage. Call a poison center or a doctor if you feel unwell.

### 4.2. Most important symptoms and effects, both acute and delayed

**Symptoms/effects after inhalation**

**Symptoms/effects after skin contact**

**Symptoms/effects after eye contact**
Irritation of the eye tissue. Eye irritation.

**Symptoms/effects after ingestion**

**Chronic symptoms**
No effects known.

### 4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

**SECTION 5: Firefighting measures**

#### 5.1. Extinguishing media

**Suitable extinguishing media**

**Unsuitable extinguishing media**
Water (quick-acting extinguisher, reel); risk of puddle expansion. Water; risk of puddle expansion.

#### 5.2. Special hazards arising from the substance or mixture

**Fire hazard**
DIRECT FIRE HAZARD: Flammable liquid and vapour. Gas/vapour flammable with air within explosion limits. INDIRECT FIRE HAZARD: May build up electrostatic charges: risk of ignition. May be ignited by sparks. Reactions involving a fire hazard: see "Reactivity Hazard". Flammable liquid and vapour.

**Explosion hazard**
DIRECT EXPLOSION HAZARD: Gas/vapour explosive with air within explosion limits. INDIRECT EXPLOSION HAZARD: may be ignited by sparks. Reactions with explosion hazards: see "Reactivity Hazard".

**Hazardous decomposition products in case of fire**
Upon combustion: CO and CO2 are formed.

#### 5.3. Advice for firefighters

**Precautionary measures fire**
Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: seal off low-lying areas. Exposure to fire/heat: have neighbourhood close doors and windows.

**Firefighting instructions**
Cool tanks/drums with water spray/remove them into safety.

**Protection during firefighting**
Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.
SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel


6.1.2. For emergency responders

Protective equipment: Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment. Prevent spreading in sewers.

6.3. Methods and material for containment and cleaning up

For containment: Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Dam up the liquid spill. Provide equipment/receptacles with earthing. Do not use compressed air for pumping over spills. Heating: dilute combustible gas/vapour with water curtain.

Methods for cleaning up: Take up liquid spill into absorbent material. Take up liquid spill into absorbent material, e.g.: dry sand/earth/vermiculite kieselguhr, powdered limestone. Scoop absorbed substance into closing containers. Carefully collect the spill/leftovers. Damaged/cooled tanks must be emptied. Do not use compressed air for pumping over spills. Clean contaminated surfaces with an excess of water. Take collected spill to manufacturer/competent authority. Wash clothing and equipment after handling. Notify authorities if product enters sewers or public waters.

Other information: Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling: Use spark-/explosionproof appliances and lighting system. Take precautions against electrostatic charges. Keep away from naked flames/heat. Keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Remove contaminated clothing immediately. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Do not discharge the waste into the drain. Do not use compressed air for pumping over. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Flammable vapours may accumulate in the container. Use explosion-proof equipment. Wear personal protective equipment. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes.

Hygiene measures: Observe normal hygiene standards. Keep container tightly closed. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures: Ground/bond container and receiving equipment.

Storage conditions: Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.

Heat and ignition sources: KEEP SUBSTANCE AWAY FROM: heat sources, ignition sources.

Information on mixed storage: KEEP SUBSTANCE AWAY FROM: oxidizing agents, (strong) acids, (strong) bases, amines.

Storage area: Ventilation at floor level. Fireproof storeroom. Provide for a tub to collect spills. Provide the tank with earthing. Store at ambient temperature. Meet the legal requirements.

Special rules on packaging: SPECIAL REQUIREMENTS: closing, clean, correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials: SUITABLE MATERIAL: steel, stainless steel, carbon steel, aluminium, zinc, polyethylene, glass, tin.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium Limit value (mg/m³)</td>
</tr>
<tr>
<td>Belgium Limit value (ppm)</td>
</tr>
</tbody>
</table>
4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)

<table>
<thead>
<tr>
<th>Country</th>
<th>Parameter</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>Short time value (mg/m³)</td>
<td>169 mg/m³</td>
</tr>
<tr>
<td>Belgium</td>
<td>Short time value (ppm)</td>
<td>40 ppm</td>
</tr>
<tr>
<td>France</td>
<td>VME (mg/m³)</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>France</td>
<td>VME (ppm)</td>
<td>25 ppm</td>
</tr>
<tr>
<td>Germany</td>
<td>Local name</td>
<td>4-Methyl-pentan-2-ol</td>
</tr>
<tr>
<td>Germany</td>
<td>TRGS 900 Occupational exposure limit value (mg/m³)</td>
<td>85 mg/m³</td>
</tr>
<tr>
<td>Germany</td>
<td>TRGS 900 Occupational exposure limit (ppm)</td>
<td>20 ppm</td>
</tr>
<tr>
<td>Germany</td>
<td>Remark (TRGS 900)</td>
<td>DFG</td>
</tr>
<tr>
<td>Spain</td>
<td>Local name</td>
<td>4-Metil-2-pentanol (Alcohol metilamílico)</td>
</tr>
<tr>
<td>Spain</td>
<td>VLA-ED (mg/m³)</td>
<td>106 mg/m³</td>
</tr>
<tr>
<td>Spain</td>
<td>VLA-ED (ppm)</td>
<td>25 ppm</td>
</tr>
<tr>
<td>Spain</td>
<td>VLA-EC (mg/m³)</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>Spain</td>
<td>VLA-EC (ppm)</td>
<td>40 ppm</td>
</tr>
<tr>
<td>Spain</td>
<td>Notes</td>
<td>Vía dérmica (Indica que, en las exposiciones a esta sustancia, la aportación por la vía cutánea puede resultar significativa para el contenido corporal total si no se adoptan medidas para prevenir la absorción. En estas situaciones, es aconsejable la utilización del control biológico para poder cuantificar la cantidad global absorbida del contaminante. Para más información véase el Apartado 5 de este documento).</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (mg/m³)</td>
<td>106 mg/m³</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL TWA (ppm)</td>
<td>25 ppm</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (mg/m³)</td>
<td>170 mg/m³</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>WEL STEL (ppm)</td>
<td>40 ppm</td>
</tr>
<tr>
<td>Australia</td>
<td>Local name</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>Australia</td>
<td>TWA (mg/m³)</td>
<td>104 mg/m³</td>
</tr>
<tr>
<td>Australia</td>
<td>TWA (ppm)</td>
<td>25 ppm</td>
</tr>
<tr>
<td>Australia</td>
<td>STEL (mg/m³)</td>
<td>167 mg/m³</td>
</tr>
<tr>
<td>Australia</td>
<td>STEL (ppm)</td>
<td>40 ppm</td>
</tr>
<tr>
<td>Australia</td>
<td>Remark (AU)</td>
<td>Sk - Absorption through the skin may be a significant source of exposure.</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>Local name</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH TWA (ppm)</td>
<td>25 ppm</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>ACGIH STEL (ppm)</td>
<td>40 ppm</td>
</tr>
<tr>
<td>USA - ACGIH</td>
<td>Remark (ACGIH)</td>
<td>URT &amp; eye irr; CNS impair</td>
</tr>
<tr>
<td>USA - OSHA</td>
<td>Local name</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>USA - OSHA</td>
<td>OSHA PEL (TWA) (mg/m³)</td>
<td>100 mg/m³</td>
</tr>
<tr>
<td>USA - OSHA</td>
<td>OSHA PEL (TWA) (ppm)</td>
<td>25 ppm</td>
</tr>
</tbody>
</table>

### 4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)

**DNEL/DMEL (Workers)**

- **Acute - systemic effects, inhalation**: 208 mg/m³
- **Acute - local effects, inhalation**: 104 mg/m³
- **Long-term - systemic effects, dermal**: 11.8 mg/kg bodyweight/day
- **Long-term - systemic effects, inhalation**: 83 mg/m³
- **Long-term - local effects, inhalation**: 83 mg/m³

**DNEL/DMEL (General population)**

- **Acute - systemic effects, inhalation**: 155.2 mg/m³
- **Acute - local effects, inhalation**: 52.1 mg/m³
- **Long-term - systemic effects, oral**: 4.2 mg/kg bodyweight/day
- **Long-term - systemic effects, inhalation**: 14.7 mg/m³
- **Long-term - systemic effects, dermal**: 4.2 mg/kg bodyweight/day
- **Long-term - local effects, inhalation**: 14.7 mg/m³

**PNEC (Water)**

- **PNEC aqua (freshwater)**: 0.6 mg/l
- **PNEC aqua (marine water)**: 0.06 mg/l
- **PNEC aqua (intermittent, freshwater)**: 3.3 mg/l
- **PNEC (Sediment)**
Methyl Isobutyl Carbinol
Safety Data Sheet
according to Regulation (EU) 2015/830

8.2. Exposure controls

Appropriate engineering controls:
Ensure good ventilation of the work station.

Materials for protective clothing:
GIVE EXCELLENT RESISTANCE: butyl rubber. GIVE GOOD RESISTANCE: butyl rubber, PVC, neoprene

Hand protection:
Gloves

Eye protection:
Safety glasses. Safety glasses

Skin and body protection:
Protective clothing

Respiratory protection:
Full face mask with filter type A at conc. in air > exposure limit

Environmental exposure controls:
Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physical state</td>
<td>Liquid</td>
</tr>
<tr>
<td>Appearance</td>
<td>Liquid</td>
</tr>
<tr>
<td>Molecular mass</td>
<td>102.18 g/mol</td>
</tr>
<tr>
<td>Colour</td>
<td>Colourless</td>
</tr>
<tr>
<td>Odour</td>
<td>Mild odour. Alcohol odour.</td>
</tr>
<tr>
<td>Odour threshold</td>
<td>No data available</td>
</tr>
<tr>
<td>pH</td>
<td>No data available</td>
</tr>
<tr>
<td>Relative evaporation rate (butylacetate=1)</td>
<td>0.3</td>
</tr>
<tr>
<td>Relative evaporation rate (ether=1)</td>
<td>33</td>
</tr>
<tr>
<td>Melting point</td>
<td>-90 °C</td>
</tr>
<tr>
<td>Freezing point</td>
<td>No data available</td>
</tr>
<tr>
<td>Boiling point</td>
<td>132 °C (1013 hPa)</td>
</tr>
<tr>
<td>Flash point</td>
<td>41 °C</td>
</tr>
<tr>
<td>Critical temperature</td>
<td>291 °C</td>
</tr>
<tr>
<td>Auto-ignition temperature</td>
<td>305 °C</td>
</tr>
<tr>
<td>Decomposition temperature</td>
<td>No data available</td>
</tr>
<tr>
<td>Flammability (solid, gas)</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Vapour pressure</td>
<td>7 hPa (20 °C)</td>
</tr>
<tr>
<td>Vapour pressure at 50 °C</td>
<td>34 hPa</td>
</tr>
<tr>
<td>Relative vapour density at 20 °C</td>
<td>3.5</td>
</tr>
<tr>
<td>Relative density</td>
<td>0.81 (20 °C)</td>
</tr>
<tr>
<td>Relative density of saturated gas/air mixture</td>
<td>1</td>
</tr>
<tr>
<td>Density</td>
<td>808 kg/m³</td>
</tr>
<tr>
<td>Solubility</td>
<td>Moderately soluble in water. Soluble in ethanol. Soluble in ether. Water: 21.8 g/l (20 °C)</td>
</tr>
<tr>
<td>Log Pow</td>
<td>1.43 (at 25 °C)</td>
</tr>
<tr>
<td>Log Kow</td>
<td>1.57 QSAR</td>
</tr>
<tr>
<td>Viscosity, kinematic</td>
<td>5.08 mm²/s (25 °C)</td>
</tr>
</tbody>
</table>
Methyl Isobutyl Carbinol
Safety Data Sheet
according to Regulation (EU) 2015/830

Viscosity, dynamic : 4.116 mPa.s (25 °C)
Explosive properties : No data available
Oxidising properties : No data available
Explosive limits : 1.0 - 5.5 vol %
42 - 235 g/m³
Lower explosive limit (LEL) : 1 vol %
Upper explosive limit (UEL) : 5.5 vol %

9.2. Other information
Specific conductivity : 70000 pS/m
Saturation concentration : 25 g/m³
VOC content : 100 %
Other properties : Gas/vapour heavier than air at 20°C. Clear. Slightly volatile. Substance has neutral reaction. May generate electrostatic charges.

SECTION 10: Stability and reactivity

10.1. Reactivity
Reacts with (some) acids: (increased) risk of fire/explosion. Reacts violently with (strong) oxidizers: (increased) risk of fire/explosion. Flammable liquid and vapour.

10.2. Chemical stability
Stable under normal conditions.

10.3. Possibility of hazardous reactions
No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid
Avoid contact with hot surfaces. Heat. No flames, no sparks. Eliminate all sources of ignition.

10.5. Incompatible materials
No additional information available

10.6. Hazardous decomposition products
Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects
Acute toxicity (oral) : Not classified
Acute toxicity (dermal) : Not classified
Acute toxicity (inhalation) : Not classified

4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)
LD50 oral rat 2590 mg/kg (Equivalent or similar to OECD 401, Rat, Experimental value)
LD50 dermal rabbit 2870 mg/kg (Equivalent or similar to OECD 402, Rabbit, Experimental value)
LC50 inhalation rat (mg/l) > 16000 mg/m³ (Equivalent or similar to OECD 403, 4 h, Rat, Male/female, Experimental value)

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Causes serious eye irritation.
Respiratory or skin sensitisation : Not classified
Germ cell mutagenicity : Not classified
Carcinogenicity : Not classified
Reproductive toxicity : Not classified

STOT-single exposure : May cause respiratory irritation.
STOT-repeated exposure : Not classified
Aspiration hazard : Not classified

SECTION 12: Ecological information

12.1. Toxicity
Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
Methyl Isobutyl Carbinol
Safety Data Sheet
according to Regulation (EU) 2015/830


Ecology - water : Slightly harmful to crustacea. Slightly harmful to fishes. Fouling to shoreline. Slightly harmful to bacteria.

Acute aquatic toxicity : Not classified

Chronic aquatic toxicity : Not classified

4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)
LC50 fish 1 : 360 mg/l (24 h, Carassius auratus, Literature study)

12.2. Persistence and degradability

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Persistence and degradability</td>
<td>Biochemical oxygen demand (BOD)</td>
<td>2.12 g O₂/g substance</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>Chemical oxygen demand (COD)</td>
<td>2.6 g O₂/g substance</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>ThOD</td>
<td>2.8 g O₂/g substance</td>
</tr>
<tr>
<td>Persistence and degradability</td>
<td>BOD (% of ThOD)</td>
<td>0.76 (Calculated value)</td>
</tr>
</tbody>
</table>

12.3. Bioaccumulative potential

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)</th>
<th>Log Pow (at 25 °C)</th>
<th>1.43</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Pow</td>
<td>1.57 QSAR</td>
<td></td>
</tr>
<tr>
<td>Log Kow</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bioaccumulative potential</td>
<td>Low potential for bioaccumulation (Log Kow &lt; 4).</td>
<td></td>
</tr>
</tbody>
</table>

12.4. Mobility in soil

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2)</th>
<th>Surface tension</th>
<th>0.023 N/m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Log Koc</td>
<td>1.11</td>
<td></td>
</tr>
<tr>
<td>Ecology - soil</td>
<td>No (test)data on mobility of the substance available.</td>
<td></td>
</tr>
</tbody>
</table>

12.5. Results of PBT and vPvB assessment

| 4-methylpentan-2-ol, methyl isobutyl carbinol (108-11-2) | Results of PBT assessment | The product does not meet the PBT and vPvB classification criteria |

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Regional legislation (waste) : LWCA (the Netherlands): KGA category 03.

Waste treatment methods : Dispose of contents/container in accordance with licensed collector’s sorting instructions.

Product/Packaging disposal recommendations : Do not discharge into surface water. Remove waste in accordance with local and/or national regulations. Hazardous waste shall not be mixed together with other waste. Different types of hazardous waste shall not be mixed together if this may entail a risk of pollution or create problems for the further management of the waste. Hazardous waste shall be managed responsibly. All entities that store, transport or handle hazardous waste shall take the necessary measures to prevent risks of pollution or damage to people or animals. Recycle by distillation. Remove to an authorized waste incinerator for solvents with energy recovery. Obtain the consent of pollution control authorities before discharging to wastewater treatment plants.


European List of Waste (LoW) code : 15 01 10* - packaging containing residues of or contaminated by dangerous substances 14 06 03* - other solvents and solvent mixtures

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

14.1. UN number

<table>
<thead>
<tr>
<th>UN-No. (ADR)</th>
<th>2053</th>
</tr>
</thead>
<tbody>
<tr>
<td>UN-No. (IMDG)</td>
<td>2053</td>
</tr>
<tr>
<td>UN-No. (IATA)</td>
<td>2053</td>
</tr>
<tr>
<td>UN-No. (ADN)</td>
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</table>

3/29/2018 EN (English) 8/12
## Methyl Isobutyl Carbinol
### Safety Data Sheet

according to Regulation (EU) 2015/830

| UN-No. (RID) | 2053 |

### 14.2. UN proper shipping name

<table>
<thead>
<tr>
<th>Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proper Shipping Name (ADR)</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>Proper Shipping Name (IMDG)</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>Proper Shipping Name (IATA)</td>
<td>Methyl isobutyl carbinol</td>
</tr>
<tr>
<td>Proper Shipping Name (ADN)</td>
<td>METHYL ISOBUTYL CARBINOL</td>
</tr>
<tr>
<td>Proper Shipping Name (RID)</td>
<td>Methyl isobutyl carbinol</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Document</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transport document description (ADR)</td>
<td>UN 2053 Methyl isobutyl carbinol, 3, III, (D/E)</td>
</tr>
<tr>
<td>Transport document description (IMDG)</td>
<td>UN 2053 Methyl isobutyl carbinol, 3, III</td>
</tr>
<tr>
<td>Transport document description (IATA)</td>
<td>UN 2053 Methyl isobutyl carbinol, 3, III</td>
</tr>
<tr>
<td>Transport document description (ADN)</td>
<td>UN 2053 METHYL ISOBUTYL CARBINOL, 3, III</td>
</tr>
<tr>
<td>Transport document description (RID)</td>
<td>UN 2053 Methyl isobutyl carbinol, 3, III</td>
</tr>
</tbody>
</table>

### 14.3. Transport hazard class(es)

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADR</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (ADR)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
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<tbody>
<tr>
<td>IMDG</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (IMDG)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>IATA</td>
<td>3</td>
</tr>
<tr>
<td>Hazard labels (IATA)</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADN</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (ADN)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>RID</td>
<td>3</td>
</tr>
<tr>
<td>Danger labels (RID)</td>
<td>3</td>
</tr>
</tbody>
</table>
14.4. Packing group

Packing group (ADR) : III
Packing group (IMDG) : III
Packing group (IATA) : III
Packing group (ADN) : III
Packing group (RID) : III

14.5. Environmental hazards

Dangerous for the environment : No
Marine pollutant : No
Other information : No supplementary information available

14.6. Special precautions for user

- Overland transport

Transport regulations (ADR) : Subject
Classification code (ADR) : F1
Limited quantities (ADR) : 5L
Hazard identification number (Kemler No.) : 30
Orange plates :
Tunnel restriction code (ADR) : D/E
EAC code : •3Y

- Transport by sea

Transport regulations (IMDG) : Subject
Limited quantities (IMDG) : 5 L
EmS-No. (Fire) : F-E
EmS-No. (Spillage) : S-D

- Air transport

Transport regulations (IATA) : Subject to the provisions
PCA limited quantity max net quantity (IATA) : 10L

- Inland waterway transport

Classification code (ADN) : F1
Limited quantities (ADN) : 5 L
Excepted quantities (ADN) : E1
Carriage permitted (ADN) : T
Equipment required (ADN) : PP, EX, A
Ventilation (ADN) : VE01
Number of blue cones/lights (ADN) : 0

- Rail transport

Transport regulations (RID) : Subject
Classification code (RID) : F1
Limited quantities (RID) : 5L
Hazard identification number (RID) : 30

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable
SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

3. Liquid substances or mixtures which are regarded as dangerous in accordance with Directive 1999/45/EC or are fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol</th>
</tr>
</thead>
</table>

3(a) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 2.1 to 2.4, 2.6 and 2.7, 2.8 types A and B, 2.9, 2.10, 2.12, 2.13 categories 1 and 2, 2.14 categories 1 and 2, 2.15 types A to F

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol</th>
</tr>
</thead>
</table>

3(b) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard classes 3.1 to 3.6, 3.7 adverse effects on sexual function and fertility or on development, 3.8 effects other than narcotic effects, 3.9 and 3.10

<table>
<thead>
<tr>
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</tr>
</thead>
</table>

3(c) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 4.1

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol</th>
</tr>
</thead>
</table>

3(d) Substances or mixtures fulfilling the criteria for any of the following hazard classes or categories set out in Annex I to Regulation (EC) No 1272/2008: Hazard class 5.1

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol</th>
</tr>
</thead>
</table>

40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.

<table>
<thead>
<tr>
<th>4-methylpentan-2-ol, methyl isobutyl carbinol</th>
</tr>
</thead>
</table>

Methyl Isobutyl Carbinol is not on the REACH Candidate List
Methyl Isobutyl Carbinol is not on the REACH Annex XIV List

VOC content : 100 %

15.1.2. National regulations

Listed on the United States TSCA (Toxic Substances Control Act) inventory

Germany
Reference to AwSV : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 3; ID No. 5026)
12th Ordinance Implementing the Federal Immission Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance)
TA Luft : 5.2.5 Organic Substances

Netherlands
Waterbezwaarlijkheid : 11 - Weinig schadelijk voor in het water levende organismen
SZW-lijst van kankerverwekkende stoffen : The substance is not listed
SZW-lijst van mutagene stoffen : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Borstvoeding : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Vruchtbaarheid : The substance is not listed
NIET-limitatieve lijst van voor de voortplanting giftige stoffen – Ontwikkeling : The substance is not listed

Denmark
Class for fire hazard : Class II-1
Store unit : 5 liter
Classification remarks : R10 <H226;H319;H335>: Emergency management guidelines for the storage of flammable liquids must be followed
Danish National Regulations : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

A chemical safety assessment has been carried out
SECTION 16: Other information

Full text of H- and EUH-statements:

<table>
<thead>
<tr>
<th>H- or EUH</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye Irrit. 2</td>
<td>Serious eye damage/eye irritation, Category 2</td>
</tr>
<tr>
<td>Flam. Liq. 3</td>
<td>Flammable liquids, Category 3</td>
</tr>
<tr>
<td>STOT SE 3</td>
<td>Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation</td>
</tr>
<tr>
<td>H226</td>
<td>Flammable liquid and vapour.</td>
</tr>
<tr>
<td>H319</td>
<td>Causes serious eye irritation.</td>
</tr>
<tr>
<td>H335</td>
<td>May cause respiratory irritation.</td>
</tr>
</tbody>
</table>

SDS EU (REACH Annex II)

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