SAFETY DATA SHEET

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

1.1 Product identifiers

Product name : 2-Butanone peroxide
Product Number : 743003
Brand : Aldrich

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

Identified uses : Laboratory chemicals, Synthesis of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO  63103
UNITED STATES
Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 3), H226
Organic peroxides (Type D), H242
Acute toxicity, Oral (Category 4), H302
Skin corrosion (Category 1B), H314
Serious eye damage (Category 1), H318
Reproductive toxicity (Category 2), H361
Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335
Short-term (acute) aquatic hazard (Category 2), H401

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

2.2 GHS Label elements, including precautionary statements

Pictogram

Aldrich - 743003
Signal Word: Danger

Hazard statement(s)
- H226: Flammable liquid and vapor.
- H242: Heating may cause a fire.
- H302: Harmful if swallowed.
- H314: Causes severe skin burns and eye damage.
- H335: May cause respiratory irritation.
- H361: Suspected of damaging fertility or the unborn child.
- H401: Toxic to aquatic life.

Precautionary statement(s)
- P201: Obtain special instructions before use.
- P202: Do not handle until all safety precautions have been read and understood.
- P210: Keep away from heat/ sparks/ open flames/ hot surfaces. No smoking.
- P220: Keep/Store away from clothing/ combustible materials.
- P233: Keep container tightly closed.
- P234: Keep only in original container.
- P240: Ground/bond container and receiving equipment.
- P241: Use explosion-proof electrical/ ventilating/ lighting/ equipment.
- P242: Use only non-sparking tools.
- P243: Take precautionary measures against static discharge.
- P261: Avoid breathing mist or vapors.
- P264: Wash skin thoroughly after handling.
- P270: Do not eat, drink or smoke when using this product.
- P271: Use only outdoors or in a well-ventilated area.
- P273: Avoid release to the environment.
- P280: Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P301 + P312 + P330: IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.
- P301 + P330 + P331: IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- P303 + P361 + P353: IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
- P304 + P340 + P310: IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/ doctor.
- P305 + P351 + P338 + P310: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER/ doctor.
- P308 + P313: IF exposed or concerned: Get medical advice/ attention.
- P363: Wash contaminated clothing before reuse.
- P370 + P378: In case of fire: Use dry sand, dry chemical or alcohol-resistant foam 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.
- P410: Protect from sunlight.
- P420: Store away from other materials.
- P501: Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS - none
### SECTION 3: Composition/information on ingredients

#### 3.2 Mixtures

| Synonyms | : Ethyl methyl ketone peroxide  
|          | Methyl ethyl ketone peroxide |
| Formula  | : C₈H₁₈O₆                          |
| Molecular weight | : 210.22 g/mol                   |

#### Component | Classification | Concentration

<table>
<thead>
<tr>
<th><strong>2-Butanone peroxide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
</tr>
<tr>
<td>EC-No.</td>
</tr>
<tr>
<td>Flam. Liq. 4; Org. Perox. B; Acute Tox. 4; Skin Corr. 1B; Eye Dam. 1; Aquatic Acute 2; H227, H241, H302, H314, H318, H401</td>
</tr>
<tr>
<td>&gt;= 50 - &lt; 70 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>2-Methyl-2-pentanol-4-one</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
</tr>
<tr>
<td>EC-No.</td>
</tr>
<tr>
<td>Index-No.</td>
</tr>
<tr>
<td>Flam. Liq. 3; Eye Irrit. 2A; Repr. 2; STOT SE 3; H226, H319, H361, H335</td>
</tr>
<tr>
<td>&gt;= 30 - &lt; 50 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Ethyl Methyl Ketone</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
</tr>
<tr>
<td>EC-No.</td>
</tr>
<tr>
<td>Index-No.</td>
</tr>
<tr>
<td>Registration number</td>
</tr>
<tr>
<td>Flam. Liq. 2; Eye Irrit. 2A; STOT SE 3; H225, H319, H336</td>
</tr>
<tr>
<td>&gt;= 10 - &lt; 20 %</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Hydrogen Peroxide</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
</tr>
<tr>
<td>EC-No.</td>
</tr>
<tr>
<td>Index-No.</td>
</tr>
<tr>
<td>Flam. Liq. 1; Acute Tox. 4; Skin Corr. 1A; Eye Dam. 1; STOT SE 3; Aquatic Acute 2; Aquatic Chronic 3; H271, H302, H332, H314, H318, H335, H401, H412</td>
</tr>
</tbody>
</table>
| Concentration limits:  
| >= 70 %: Ox. Liq. 1, H271; 50 - < 70 %: Ox. Liq. 2, H272;  
| => 70 %: Skin Corr. 1A, H314; 50 - < 70 %: Skin Corr. 1B, H314;  
| 35 - < 50 %: Skin Irrit. 2, H315; 8 - < 50 %: Eye Dam. 1, H318;  
| 5 - < 8 %: Eye Irrit. 2, H319;  
| >= 35 %: STOT SE 3, H335;  
| > 40 - < 50 %: Ox. Liq. 3, H272; |
| >= 5 - < 8 % |

<table>
<thead>
<tr>
<th><strong>1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS-No.</td>
</tr>
<tr>
<td>Flam. Liq. 3; Aquatic Chronic</td>
</tr>
<tr>
<td>&gt;= 5 - &lt; 10</td>
</tr>
</tbody>
</table>

---

*The life science business of Merck KGaA, Darmstadt, Germany operates as MilliporeSigma in the US and Canada*
SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice
First aiders need to protect themselves. Show this material safety data sheet to the doctor in attendance.

If inhaled
After inhalation: fresh air. Call in physician.

In case of skin contact
In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician immediately.

In case of eye contact
After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

If swallowed
After swallowing: make victim drink water (two glasses at most), avoid vomiting (risk of perforation). Call a physician immediately. Do not attempt to neutralise.

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
Water Foam Carbon dioxide (CO₂) Dry powder

Unsuitable extinguishing media
For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Combustible.
Vapors are heavier than air and may spread along floors.
Forms explosive mixtures with air at elevated temperatures.
Development of hazardous combustion gases or vapours possible in the event of fire.

5.3 Advice for firefighters
Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.
5.4 **Further information**
Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**SECTION 6: Accidental release measures**

6.1 **Personal precautions, protective equipment and emergency procedures**
Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert. For personal protection see section 8.

6.2 **Environmental precautions**
Do not let product enter drains. Risk of explosion.

6.3 **Methods and materials for containment and cleaning up**
Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

6.4 **Reference to other sections**
For disposal see section 13.

**SECTION 7: Handling and storage**

7.1 **Precautions for safe handling**

*Advice on protection against fire and explosion*
Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

*Hygiene measures*
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance. For precautions see section 2.2.

7.2 **Conditions for safe storage, including any incompatibilities**

*Storage conditions*
Tightly closed. Separately or together with other organic peroxides only and away from sources of ignition and heat.

*Storage stability*
Recommended storage temperature
2 - 8 °C

Avoid heating above: 30°C

*Storage class*
Storage class (TRGS 510): 5.2: Organic peroxides and self-reacting hazardous materials

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

   Ingredients with workplace control parameters
<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Value</th>
<th>Control parameters</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone peroxide</td>
<td>1338-23-4</td>
<td>C</td>
<td>0.2 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.7 ppm 5 mg/m³</td>
<td>USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.2 ppm 1.5 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>C</td>
<td>0.2 ppm 1.5 mg/m³</td>
<td>California permissible exposure limits for chemical contaminants</td>
</tr>
<tr>
<td></td>
<td>123-42-2</td>
<td>TWA</td>
<td>50 ppm 240 mg/m³</td>
<td>USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm 240 mg/m³</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm 240 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>50 ppm 240 mg/m³</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td>Ethyl Methyl Ketone</td>
<td>78-93-3</td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>STEL</td>
<td>300 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TWA</td>
<td>200 ppm 590 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ST</td>
<td>300 ppm 885 mg/m³</td>
<td>USA. NIOSH Recommended Exposure Limits</td>
</tr>
<tr>
<td>Hydrogen Peroxide</td>
<td>7722-84-1</td>
<td>TWA</td>
<td>1 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
</tr>
</tbody>
</table>

**Remarks:** Confirmed animal carcinogen with unknown relevance to humans.
<table>
<thead>
<tr>
<th></th>
<th>TWA</th>
<th>1 ppm 1.4 mg/m3</th>
<th>USA. NIOSH Recommended Exposure Limits</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>TWA</td>
<td>1 ppm 1.4 mg/m3</td>
<td>USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants</td>
</tr>
<tr>
<td></td>
<td>PEL</td>
<td>1 ppm 1.4 mg/m3</td>
<td>California permissible exposure limits for chemical contaminants (Title 8, Article 107)</td>
</tr>
<tr>
<td></td>
<td>TWA</td>
<td>1 ppm 1.4 mg/m3</td>
<td>USA. Table Z-1-A Limits for Air Contaminants (1989 vacated values)</td>
</tr>
</tbody>
</table>

**Biological occupational exposure limits**

<table>
<thead>
<tr>
<th>Component</th>
<th>CAS-No.</th>
<th>Parameters</th>
<th>Value</th>
<th>Biological specimen</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl Methyl Ketone</td>
<td>78-93-3</td>
<td>methyl ethyl ketone</td>
<td>2 mg/l</td>
<td>Urine</td>
<td>ACGIH - Biological Exposure Indices (BEI)</td>
</tr>
</tbody>
</table>

**Remarks**

End of shift (As soon as possible after exposure ceases)

### 8.2 Exposure controls

**Appropriate engineering controls**
Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**Personal protective equipment**

**Eye/face protection**
Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

**Skin protection**
required

**Body Protection**
Flame retardant antistatic protective clothing.

**Respiratory protection**
required when vapours/aerosols are generated.
Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

**Control of environmental exposure**
Do not let product enter drains. Risk of explosion.

### SECTION 9: Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

a) **Appearance**
   Form: liquid
   Color: colorless

Aldrich - 743003
b) Odor
   No data available

c) Odor Threshold
   No data available

d) pH
   No data available

e) Melting point/freezing point
   No data available

f) Initial boiling point and boiling range
   No data available

g) Flash point
   56 °C (133 °F) - closed cup

h) Evaporation rate
   No data available

i) Flammability (solid, gas)
   No data available

j) Upper/lower flammability or explosive limits
   No data available

k) Vapor pressure
   0.002 hPa at 25 °C (77 °F)

l) Vapor density
   No data available

m) Density
   1.02 g/cm³ at 20 °C (68 °F)

   Relative density
   No data available

n) Water solubility
   ca.6.5 g/l at 20 °C (68 °F)

o) Partition coefficient: n-octanol/water
   No data available

p) Autoignition temperature
   No data available

q) Decomposition temperature
   ca.60 °C (ca.140 °F) -

r) Viscosity
   No data available

s) Explosive properties
   Not classified as explosive.

t) Oxidizing properties
   none

9.2 Other safety information
   No data available

SECTION 10: Stability and reactivity

10.1 Reactivity
   Vapor/air-mixtures are explosive at intense warming.

10.2 Chemical stability
   The product is chemically stable under standard ambient conditions (room temperature).

10.3 Possibility of hazardous reactions
   No data available

10.4 Conditions to avoid
   Heat, flames and sparks. Avoid heating above: 30°C
Heating.

10.5 **Incompatible materials**
acids, Bases, Organic materials, Metal oxides, Heavy metal salts, Amines

10.6 **Hazardous decomposition products**
In the event of fire: see section 5

---

**SECTION 11: Toxicological information**

11.1 **Information on toxicological effects**

**Mixture**

**Acute toxicity**
Oral: No data available
Acute toxicity estimate Oral - 1,410 mg/kg (Calculation method)
Symptoms: If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Inhalation: No data available
Acute toxicity estimate Inhalation - 4 h - 131.07 mg/l - vapor (Calculation method)
Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract
Dermal: No data available
Acute toxicity estimate Dermal - > 5,000 mg/kg (Calculation method)

**Skin corrosion/irritation**
Mixture causes burns.

**Serious eye damage/eye irritation**
Mixture causes serious eye damage. Risk of blindness!

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
No data available

**Carcinogenicity**
IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.
NTP: No ingredient 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 on OSHA’s list of regulated carcinogens.

**Reproductive toxicity**
Suspected of damaging the unborn child.
Suspected of damaging fertility.

**Specific target organ toxicity - single exposure**
Mixture may cause respiratory irritation.
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

11.2 Additional Information
burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, Nausea, Vomiting
Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Stomach - Irregularities - Based on Human Evidence

Liver - Irregularities - Based on Human Evidence

Components
2-Butanone peroxide

Acute toxicity
LD50 Oral - Rat - male - 1,017 mg/kg (OECD Test Guideline 401)
LC50 Inhalation - Rat - male and female - 4 h - 17 mg/l (OECD Test Guideline 403)
LD50 Dermal - Rabbit - male and female - 4,000 mg/kg (OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - Rabbit

Serious eye damage/eye irritation
Eyes - Rabbit

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

Germ cell mutagenicity
Test Type: Ames test
Test system: S. typhimurium
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available
No data available

Specific target organ toxicity - single exposure
No data available
Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

2-Methyl-2-pentanol-4-one

Acute toxicity
LD50 Oral - Rat - male and female - 3,002 mg/kg
(OECD Test Guideline 401)
Symptoms: Risk of aspiration upon vomiting., Aspiration may cause pulmonary edema and pneumonitis.
Inhalation: No data available
Symptoms: mucosal irritations
LD50 Dermal - Rabbit - 13,630 mg/kg
Remarks: (IUCLID)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 24 h
(OECD Test Guideline 404)
Remarks: (IUCLID)
Drying-out effect resulting in rough and chapped skin.
Dermatitis

Serious eye damage/eye irritation
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)
Remarks: (IUCLID)
Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Respiratory or skin sensitization
Maximization Test - Guinea pig
Result: negative
(OECD Test Guideline 406)

Germ cell mutagenicity
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: In vitro mammalian cell gene mutation test
Test system: mouse lymphoma cells
Result: negative
Test Type: Chromosome aberration test in vitro
Test system: Chinese hamster lung cells
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
Suspected of damaging the unborn child.
Suspected of damaging fertility.

Specific target organ toxicity - single exposure
May cause respiratory irritation. - Respiratory Tract
Acute oral toxicity - Risk of aspiration upon vomiting. Aspiration may cause pulmonary edema and pneumonitis.

Acute inhalation toxicity - mucosal irritations

Specific target organ toxicity - repeated exposure

Aspiration hazard
No data available

**Ethyl Methyl Ketone**

**Acute toxicity**
LD$_{50}$ Oral - Rat - male and female - 2,193 mg/kg  
(OECD Test Guideline 423)  
LC$_{50}$ Inhalation - Mouse - 4 h - 32,000 mg/m$^3$ - vapor  
Remarks: (RTECS)  
LD$_{50}$ Dermal - Rabbit - 6,480 mg/kg  
Remarks: (RTECS)  
No data available

**Skin corrosion/irritation**
Skin - Rabbit  
Result: No skin irritation - 4 h  
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit  
Result: Severe irritations  
(OECD Test Guideline 405)  

**Respiratory or skin sensitization**
Buehler Test - Guinea pig  
Result: negative  
(OECD Test Guideline 406)

**Germ cell mutagenicity**
Test Type: Ames test  
Test system: S. typhimurium  
Result: negative  
Test Type: Mutagenicity (mammal cell test): chromosome aberration.  
Test system: rat hepatocytes  
Result: negative  
Test Type: In vitro mammalian cell gene mutation test  
Test system: mouse lymphoma cells  
Result: negative  
Method: OECD Test Guideline 474  
Species: Mouse - male and female - Bone marrow  
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
No data available

**Specific target organ toxicity - single exposure**
May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure
No data available

Aspiration hazard
No data available

Hydrogen Peroxide

Acute toxicity
LD50 Oral - Rat - female - 693.7 mg/kg
(OECD Test Guideline 401)
Acute toxicity estimate Inhalation - 4 h - 11.1 mg/l - vapor
(Expert judgment)
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(US-EPA)
No data available

Skin corrosion/irritation
Causes severe burns. Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Serious eye damage/eye irritation
Causes serious eye damage.

Respiratory or skin sensitization
No data available

Germ cell mutagenicity
Method: OECD Test Guideline 474
Species: Mouse - male and female - Bone marrow
Result: negative

Carcinogenicity
No data available

Reproductive toxicity
No data available

Specific target organ toxicity - single exposure
Inhalation - May cause respiratory irritation. - Respiratory Tract

Specific target organ toxicity - repeated exposure
No data available

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate

Acute toxicity
LD50 Oral - Rat - female - > 2,000 mg/kg
(OECD Test Guideline 425)
Inhalation: No data available
LD50 Dermal - Rabbit - male and female - > 2,000 mg/kg
(OECD Test Guideline 402)
No data available

Skin corrosion/irritation
Skin - Rabbit
Result: No skin irritation - 4 h
(OECD Test Guideline 404)

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: No eye irritation

(OECD Test Guideline 405)

**Respiratory or skin sensitization**
No data available

**Germ cell mutagenicity**
Test Type: In vitro mammalian cell gene mutation test
Test system: Chinese hamster ovary cells
Result: negative
Test Type: Ames test
Test system: Escherichia coli/Salmonella typhimurium
Result: negative
Test Type: Mutagenicity (mammal cell test): chromosome aberration.
Test system: Chinese hamster ovary cells
Result: negative

**Carcinogenicity**
No data available

**Reproductive toxicity**
Suspected of damaging the unborn child.

**Specific target organ toxicity - single exposure**
No data available

**Specific target organ toxicity - repeated exposure**
No data available

**Aspiration hazard**
No data available

---

**SECTION 12: Ecological information**

**12.1 Toxicity**

**Mixture**
No data available

**12.2 Persistence and degradability**
No data available

**12.3 Bioaccumulative potential**
No data available

**12.4 Mobility in soil**
No data available

**12.5 Results of PBT and vPvB assessment**
PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

**12.6 Endocrine disrupting properties**
No data available

**12.7 Other adverse effects**
No data available
### Components

#### 2-Butanone peroxide

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>semi-static test LC50 - Poecilia reticulata (guppy) - 44.2 mg/l - 96 h (OECD Test Guideline 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>static test EC50 - Daphnia magna (Water flea) - 39 mg/l - 48 h (OECD Test Guideline 202)</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test EC50 - Pseudokirchneriella subcapitata - 5.6 mg/l - 72 h (OECD Test Guideline 201)</td>
</tr>
<tr>
<td>Toxicity to bacteria</td>
<td>Respiration inhibition EC50 - Sludge Treatment - 48 mg/l - 30 min (OECD Test Guideline 209)</td>
</tr>
</tbody>
</table>

#### 2-Methyl-2-pentanol-4-one

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>semi-static test LC50 - Oryzias latipes (Orange-red killifish) - &gt; 100 mg/l - 96 h (OECD Test Guideline 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>semi-static test EC50 - Daphnia magna (Water flea) - &gt; 1,000 mg/l - 48 h (OECD Test Guideline 202)</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test ErC50 - Pseudokirchneriella subcapitata (green algae) - &gt; 1,000 mg/l - 72 h (OECD Test Guideline 201)</td>
</tr>
<tr>
<td>Toxicity to bacteria</td>
<td>static test EC50 - activated sludge - &gt; 1,000 mg/l - 3 h (OECD Test Guideline 209)</td>
</tr>
</tbody>
</table>

#### Ethyl Methyl Ketone

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>static test LC50 - Pimephales promelas (fathead minnow) - 2,993 mg/l - 96 h (OECD Test Guideline 203)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxicity to daphnia and other aquatic invertebrates</td>
<td>static test EC50 - Daphnia magna (Water flea) - 308 mg/l - 48 h (OECD Test Guideline 202)</td>
</tr>
<tr>
<td>Toxicity to algae</td>
<td>static test ErC50 - Pseudokirchneriella subcapitata - 1,972 mg/l - 72 h (OECD Test Guideline 201)</td>
</tr>
</tbody>
</table>

#### Hydrogen Peroxide

<table>
<thead>
<tr>
<th>Toxicity to fish</th>
<th>semi-static test LC50 - Pimephales promelas (fathead minnow) - 16.4 mg/l - 96 h</th>
</tr>
</thead>
</table>
Toxicity to daphnia and other aquatic invertebrates
semi-static test LC50 - Daphnia pulex (Water flea) - 2.4 mg/l - 48 h
(US-EPA)

Toxicity to algae
static test ErC50 - Skeletonema costatum (marine diatom) - 1.38 mg/l - 72 h
Remarks: (ECHA)
static test NOEC - Skeletonema costatum (marine diatom) - 0.63 mg/l - 72 h
Remarks: (ECHA)

Toxicity to bacteria
static test EC50 - activated sludge - 466 mg/l - 30 min
(OECD Test Guideline 209)
static test EC50 - activated sludge - > 1,000 mg/l - 3 h
(OECD Test Guideline 209)

1-Isopropyl-2,2-dimethyltrimethylene diisobutyrate

Toxicity to fish
flow-through test NOEC - Lepomis macrochirus - >= 6 mg/l - 96 h
(OECD Test Guideline 203)

Toxicity to algae
Growth inhibition ErC50 - Pseudokirchneriella subcapitata (green algae) - > 7.49 mg/l - 72 h
(OECD Test Guideline 201)
Growth inhibition NOEC - Pseudokirchneriella subcapitata (green algae) - 3.56 mg/l - 72 h
(OECD Test Guideline 201)

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)
UN number: 3105 Class: 5.2
Proper shipping name: Organic peroxide type D, liquid (Methyl ethyl ketone peroxide(s), ≤45%)
Reportable Quantity (RQ): 20 lbs
Reportable Quantity (RQ): 5000 lbs
Reportable Quantity (RQ): 100 lbs
Poison Inhalation Hazard: No
IMDG
UN number: 3105  Class: 5.2  EMS-No: F-J, S-R
Proper shipping name: ORGANIC PEROXIDE TYPE D, LIQUID (METHYL ETHYL KETONE PEROXIDE(S))

IATA
UN number: 3105  Class: 5.2 (HEAT)
Proper shipping name: Organic peroxide type D, liquid (Methyl ethyl ketone peroxide(s))
Special Provisions: "Keep away from heat" label required.

SECTION 15: Regulatory information

SARA 302 Components
Hydrogen Peroxide  CAS-No.  Revision Date
7722-84-1  2014-05-05

SARA 313 Components
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, Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Reportable Quantity  D035 lbs
                      F005 lbs

Massachusetts Right To Know Components
No components are subject to the Massachusetts Right to Know Act.

SECTION 16: Other information

Further information
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.

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