1. PRODUCT AND COMPANY IDENTIFICATION

Product name: 2-Butanone
Product Number: 48877
Brand: Supelco
Supplier: Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA
Telephone: +1 800-325-5832
Fax: +1 800-325-5052
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
Target Organ Effect, Toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Irritant

Target Organs
Eyes, Kidney, Liver, Heart, Central nervous system

GHS Classification
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 3)
Acute toxicity, Dermal (Category 3)
Skin irritation (Category 2)
Eye irritation (Category 2A)
Specific target organ toxicity - single exposure (Category 1)

GHS Label elements, including precautionary statements

Pictogram

Signal word: Danger

Hazard statement(s)
H301 + H311 Toxic if swallowed or in contact with skin
H315 Causes skin irritation.
H319 Causes serious eye irritation.
H331 Toxic if inhaled.
H370 Causes damage to organs.

Precautionary statement(s)
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P280 Wear protective gloves/ protective clothing.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P307 + P311: IF exposed: Call a POISON CENTER or doctor/physician.

HMIS Classification
- Health hazard: 2
- Chronic Health Hazard: *
- Flammability: 0
- Physical hazards: 0

NFPA Rating
- Health hazard: 2
- Fire: 0
- Reactivity Hazard: 0

Potential Health Effects
- Inhalation: Toxic if inhaled. Causes respiratory tract irritation.
- Skin: Toxic if absorbed through skin. Causes skin irritation.
- Eyes: Causes eye irritation.
- Ingestion: Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms:
- Methyl ethyl ketone (MEK)
- Ethyl methyl ketone

Formula: \( C_4H_8O \)

Molecular Weight: 72.11 g/mol

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methanol</td>
<td>Flam. Liq. 2; Acute Tox. 3; Skin Irrit. 2; Eye Irrit. 2; STOT SE 1; H225, H301 + H311 + H331, H315, H319, H370</td>
<td>-</td>
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<tr>
<td>CAS-No.</td>
<td>67-56-1</td>
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<td>EC-No.</td>
<td>200-659-6</td>
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<td>Index-No.</td>
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For the full text of the H-Statements and R-Phrases mentioned in this Section, see Section 16

4. FIRST AID MEASURES

General advice
Move out of dangerous area. 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. Take victim immediately to hospital. 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
Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES

Conditions of flammability
Not flammable or combustible.

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

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

6. ACCIDENTAL RELEASE MEASURES

Personal precautions
Wear respiratory protection. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe 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
Soak up with inert absorbent material and dispose of as hazardous waste. Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling
Avoid contact with skin and eyes. Avoid inhalation of vapour or mist.

Conditions for safe storage
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/PERSOAL 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>
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<tr>
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<td>67-56-1</td>
<td>TWA</td>
<td>200 ppm</td>
<td>USA. ACGIH Threshold Limit Values (TLV)</td>
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<td>Remarks</td>
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Remarks
Headache Eye damage Substances for which there is a Biological Exposure Index or Indices (see BEI® section) Danger of cutaneous absorption

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TWA 200 ppm
260 mg/m3
USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

Skin notation

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STEL 250 ppm
325 mg/m3
USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

Skin notation

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Potential for dermal absorption

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Potential for dermal absorption

The value in mg/m3 is approximate.

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USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

USA. OSHA

USA. NIOSH Recommended Exposure Limits

Potential for dermal absorption

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</table>

USA. ACGIH Threshold Limit Values (TLV)

USA. OSHA

USA. NIOSH Recommended Exposure Limits

USA. ACGIH Threshold Limit Values (TLV)

USA. OSHA - TABLE Z-1 Limits for Air Contaminants - 1910.1000

USA. OSHA

USA. NIOSH Recommended Exposure Limits

USA. NIOSH Recommended Exposure Limits

USA. NIOSH Recommended Exposure Limits
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.

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 166(EU).

Skin and body protection
Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures
Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

<table>
<thead>
<tr>
<th>Appearance</th>
<th></th>
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<tbody>
<tr>
<td>Form</td>
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<td>Colour</td>
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<tbody>
<tr>
<td>pH</td>
<td>no data available</td>
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<tr>
<td>Melting point/freezing point</td>
<td>Melting point/range: -87 °C (-125 °F) - lit.</td>
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<tr>
<td>Boiling point</td>
<td>80 °C (176 °F) - lit.</td>
</tr>
<tr>
<td>Flash point</td>
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</tr>
<tr>
<td>Ignition temperature</td>
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<tr>
<td>Autoignition temperature</td>
<td>no data available</td>
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<tr>
<td>Lower explosion limit</td>
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<td>Upper explosion limit</td>
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<tr>
<td>Vapour pressure</td>
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<tr>
<td>Density</td>
<td>0.805 g/cm³ at 25 °C (77 °F)</td>
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<tr>
<td>Water solubility</td>
<td>no data available</td>
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<td>Partition coefficient: n-octanol/water</td>
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<tr>
<td>Relative vapour density</td>
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<tr>
<td>Odour</td>
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<tr>
<td>Odour Threshold</td>
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<tr>
<td>Evaporation rate</td>
<td>no data available</td>
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</table>

10. STABILITY AND REACTIVITY
Chemical stability
Stable under recommended storage conditions.

Possibility of hazardous reactions
no data available

Conditions to avoid
no data available

Materials to avoid
Acids, Oxidizing agents, Alkali metals, Acid chlorides, Acid anhydrides, Reducing agents, Strong reducing agents

Hazardous decomposition products
Hazardous decomposition products formed under fire conditions. - Carbon oxides
Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50
no data available

Inhalation LC50
no data available

Dermal LD50
no data available

Other information on acute toxicity
no data available

Skin corrosion/irritation
no data available

Serious eye damage/eye irritation
Eyes: no data available

Respiratory or skin sensitization
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)
no data available
Specific target organ toxicity - repeated exposure (Globally Harmonized System)
no data available

Aspiration hazard
no data available

Potential health effects

**Inhalation**
Toxic if inhaled. Causes respiratory tract irritation.

**Ingestion**
Toxic if swallowed.

**Skin**
Toxic if absorbed through skin. Causes skin irritation.

**Eyes**
Causes eye irritation.

Signs and Symptoms of Exposure
Methyl alcohol may be fatal or cause blindness if swallowed., Cannot be made non-poisonous., Effects due to ingestion may include:, Nausea, Dizziness, Gastrointestinal disturbance, Weakness, Confusion., Drowsiness, Unconsciousness.
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: Not available

12. ECOLOGICAL INFORMATION

Toxicity
no data available

Persistence and degradability
no data available

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
Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging
Dispose of as unused product.

14. TRANSPORT INFORMATION

**DOT (US)**
UN number: 1230  Class: 3  Packing group: II
Proper shipping name: Methanol, solution
Reportable Quantity (RQ): 5000 lbs
Marine pollutant: No
Poison Inhalation Hazard: No

**IMDG**
UN number: 1230  Class: 3 (6.1)  Packing group: II  EMS-No: F-E, S-D
Proper shipping name: METHANOL, SOLUTION
Marine pollutant: No
IATA
UN number: 1230   Class: 3 (6.1)   Packing group: II
Proper shipping name: Methanol, solution

15. REGULATORY INFORMATION

OSHA Hazards
Target Organ Effect, Toxic by inhalation., Toxic by ingestion, Toxic by skin absorption, Irritant

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
The following components are subject to reporting levels established by SARA Title III, Section 313:

<table>
<thead>
<tr>
<th>CAS-No.</th>
<th>Revision Date</th>
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<tbody>
<tr>
<td>Methanol</td>
<td>67-56-1 2007-07-01</td>
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SARA 311/312 Hazards
Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

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<th>Revision Date</th>
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<tbody>
<tr>
<td>Methanol</td>
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Pennsylvania Right To Know Components

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<th>Revision Date</th>
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<td>7732-18-5 2007-07-01</td>
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<tr>
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<td>67-56-1 2007-07-01</td>
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<tr>
<td>Ethyl methyl ketone</td>
<td>78-93-3 2007-03-01</td>
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New Jersey Right To Know Components

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<th>Revision Date</th>
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<tbody>
<tr>
<td>Water</td>
<td>7732-18-5 2007-07-01</td>
</tr>
<tr>
<td>Methanol</td>
<td>67-56-1 2007-07-01</td>
</tr>
</tbody>
</table>

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

Text of H-code(s) and R-phrase(s) mentioned in Section 3

- **Acute Tox.** Acute toxicity
- **Eye Irrit.** Eye irritation
- **Flam. Liq.** Flammable liquids
- **H225** Highly flammable liquid and vapour.
- **H301 + H311 +** Toxic if swallowed, in contact with skin or if inhaled
- **H331**
- **H315** Causes skin irritation.
- **H319** Causes serious eye irritation.
- **H370** Causes damage to organs.
- **Skin Irrit.** Skin irritation
- **STOT SE** Specific target organ toxicity - single exposure

Further information
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