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

1.1 Product identifiers

Product name : 2-Butanone

Product Number : 04380
Brand : Fluka
Index-No. : 606-002-00-3
REACH No. : A registration number is not available for this substance as the substance or its uses are exempted from registration, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. : 78-93-3

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

Identified uses : Laboratory chemicals, Manufacture of substances

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Chemie BV
Stationsplein 4
3331 LL ZWIJNDRECHT
NETHERLANDS

Telephone : +31 78-620-5411
Fax : +31 78-620-5421
E-mail address : eurtechserv@sial.com

1.4 Emergency telephone number

Emergency Phone # : 112

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008
Flammable liquids (Category 2), H225
Eye irritation (Category 2), H319
Specific target organ toxicity - single exposure (Category 3), Central nervous system, H336

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

2.2 Label elements

Labelling according Regulation (EC) No 1272/2008

Pictogram

Signal word : Danger

Hazard statement(s)
H225 : Highly flammable liquid and vapour.
H319 : Causes serious eye irritation.
May cause drowsiness or dizziness.

Precautionary statement(s)
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P370 + P378 In case of fire: Use dry powder or dry sand to extinguish.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplemental Hazard information (EU) EUH066 Repeated exposure may cause skin dryness or cracking.

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

SECTION 3: Composition/information on ingredients

3.1 Substances
Synonyms: Methyl ethyl ketone MEK
Ethyl methyl ketone

<table>
<thead>
<tr>
<th>Component</th>
<th>Classification</th>
<th>Concentration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethyl methyl ketone</td>
<td>Flam. Liq. 2; Eye Irrit. 2; STOT SE 3; H225, H319, H336</td>
<td>&lt;= 100 %</td>
</tr>
<tr>
<td>CAS-No.</td>
<td>78-93-3</td>
<td></td>
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<tr>
<td>EC-No.</td>
<td>201-159-0</td>
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<tr>
<td>Index-No.</td>
<td>606-002-00-3</td>
<td></td>
</tr>
</tbody>
</table>

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

SECTION 4: First aid measures

4.1 Description of first aid measures

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

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

In case of skin contact
Wash off with soap and plenty of water. Consult a physician.

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

If swallowed
Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
4.2 Most important symptoms and effects, both acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed
No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

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

5.2 Special hazards arising from the substance or mixture
Carbon oxides
Flash back possible over considerable distance., Container explosion may occur under fire conditions.

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

5.4 Further information
Use water spray to cool unopened containers.

SECTION 6: Accidental release measures

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

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

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

6.4 Reference to other sections
For disposal see section 13.

SECTION 7: Handling and storage

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

7.2 Conditions for safe storage, including any incompatibilities
Store under inert gas. 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.
Hygroscopic.
Storage class (TRGS 510): Flammable liquids

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

8.1 Control parameters

Components with workplace control parameters

8.2 Exposure controls

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

Personal protective equipment

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

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

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

Splash contact
Material: butyl-rubber
Minimum layer thickness: 0,3 mm
Break through time: 292 min
Material tested:Butoject® (KCL 897 / Aldrich Z677647, Size M)
data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

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

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

Control of environmental exposure
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance
Form: liquid, clear
Colour: colourless

b) Odour
No data available

c) Odour Threshold
No data available
d) pH No data available

e) Melting point/freezing point Melting point/range: -87 °C

f) Initial boiling point and boiling range 80 °C

g) Flash point -2,99 °C - closed cup

h) Evaporation rate No data available

i) Flammability (solid, gas) No data available

j) Upper/lower flammability or explosive limits Upper explosion limit: 10,1 %(V) Lower explosion limit: 1,8 %(V)

k) Vapour pressure 95 hPa at 20 °C

l) Vapour density 2,49 - (Air = 1.0)

m) Relative density 0,805 g/mL at 25 °C

n) Water solubility soluble

o) Partition coefficient: n-octanol/water log Pow: 0,29

p) Auto-ignition temperature No data available

q) Decomposition temperature No data available

r) Viscosity No data available

s) Explosive properties No data available

t) Oxidizing properties No data available

9.2 Other safety information

Surface tension 24,6 mN/m at 20 °C
Relative vapour density 2,49 - (Air = 1.0)

SECTION 10: Stability and reactivity

10.1 Reactivity
No data available

10.2 Chemical stability
Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions
No data available

10.4 Conditions to avoid
Exposure to moisture
Heat, flames and sparks.

10.5 Incompatible materials
Oxidizing agents, Strong reducing agents

10.6 Hazardous decomposition products
Other decomposition products - No data available
In the event of fire: see section 5
SECTION 11: Toxicological information

11.1 Information on toxicological effects

**Acute toxicity**
LD50 Oral - Rat - 2.737 mg/kg

LC50 Inhalation - Mouse - 4 h - 32.000 mg/m3

LC50 Inhalation - Mammal - 38.000 mg/m3

LD50 Dermal - Rabbit - 6.480 mg/kg

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

**Serious eye damage/eye irritation**
Eyes - Rabbit
Result: Irritating to eyes.
(OECD Test Guideline 405)

**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.

**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

**Additional Information**
RTECS: EL6475000

Central nervous system depression, Gastrointestinal disturbance, narcosis
Liver - Irregularities - Based on Human Evidence

SECTION 12: Ecological information

12.1 Toxicity

**Toxicity to fish**
mortality NOEC - Cyprinodon variegatus (sheepshead minnow) - 400 mg/l - 96 h

LC50 - Pimephales promelas (fathead minnow) - 3.130 - 3.320 mg/l - 96 h

**Toxicity to daphnia and other aquatic invertebrates**
LC50 - Daphnia magna (Water flea) - > 520 mg/l - 48 h

EC50 - Daphnia magna (Water flea) - 7.060 mg/l - 24 h

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

12.6 **Other adverse effects**
No data available

**SECTION 13: Disposal considerations**

13.1 **Waste treatment methods**

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

**Contaminated packaging**
Dispose of as unused product.

**SECTION 14: Transport information**

14.1 **UN number**
ADR/RID: 1193  
IMDG: 1193  
IATA: 1193

14.2 **UN proper shipping name**
ADR/RID: ETHYL METHYL KETONE  
IMDG: ETHYL METHYL KETONE  
IATA: Ethyl methyl ketone

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

14.4 **Packaging group**
ADR/RID: II  
IMDG: II  
IATA: II

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

14.6 **Special precautions for user**
No data available

**SECTION 15: Regulatory information**

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

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

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

**SECTION 16: Other information**

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

- EUH066 Repeated exposure may cause skin dryness or cracking.
- H225 Highly flammable liquid and vapour.
- H319 Causes serious eye irritation.
- H336 May cause drowsiness or dizziness.
Further information
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