SAFETY DATA SHEET
Methyl ethyl ketone (MEK)

concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), Annex II - EU

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

Date issued 19.08.2014

1.1. Product identifier
Product name Methyl ethyl ketone (MEK)
Chemical name Methyl ethyl ketone
Synonyms butan-2-on, 2-butanon, Ethyl methyl ketone
REACH Reg. No. 01-2119457290-43-0000
CAS no. 78-93-3
EC no. 201-159-0
Index no. 606-002-00-3
Article no. 18000000

1.2. Relevant identified uses of the substance or mixture and uses advised against
Use of the substance/preparation For the preparation of paints and as a solvent.

1.3. Details of the supplier of the safety data sheet
Manufacturer
Company name Fred Holmberg & Co AB
Office address Geijersgatan 8
Postal address Box 60056
Postcode S-216 10
City Limhamn
Country Sweden
Tel +46 (0)40 15 79 20
Fax +46 (0)40 16 22 95
E-mail info@holmberg.se
Website http://www.holmberg.se/en/

1.4. Emergency telephone number
Emergency telephone 112 (Europe)

SECTION 2: Hazards identification

2.1. Classification of substance or mixture
Classification according to 67/548/EEC or 1999/45/EC F; R11
Xi; R36
R66, R67
Classification according to Regulation (EC) No 1272/2008 [CLP/GHS] Flam. Liq. 2; H225;
Eye Irrit. 2; H319;
STOT SE3; H336;

2.2. Label elements
Hazard Pictograms (CLP)
Signal word

Hazard statements
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

Precautionary statements
P210 Keep away from heat/sparks/open flames/hot surfaces. -- No smoking.
P233 Keep container tightly closed.
P243 Take precautionary measures against static discharge.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.
P303 + P361 + P353 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P403 + P235 Store in a well-ventilated place. Keep cool.

Supplemental label information
EUH 066 Repeated exposure may cause skin dryness or cracking.

2.3. Other hazards
Other hazards
Not known.

SECTION 3: Composition/information on ingredients

3.1. Substances

<table>
<thead>
<tr>
<th>Substance</th>
<th>Identification</th>
<th>Classification</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butanone</td>
<td>CAS no.: 78-93-3</td>
<td>F; R11</td>
<td>100 %</td>
</tr>
<tr>
<td></td>
<td>EC no.: 201-159-0</td>
<td>Xi; R36</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Index no.: 606-002-00-3</td>
<td>R66</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Synonyms: Butan-2-one</td>
<td>R67</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Flam. Liq. 2; H225</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Eye Irrit. 2; H319</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>STOT SE 3; H336</td>
<td></td>
</tr>
</tbody>
</table>

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation
Move the exposed person to fresh air at once. Get medical attention if any discomfort continues.

Skin contact
Remove contaminated clothes and rinse skin thoroughly with water.

Eye contact
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyes wide apart. To hospital or eye specialist.

Ingestion
NEVER MAKE AN UNCONSCIOUS PERSON VOMIT OR DRINK FLUIDS! Do not induce vomiting. Rinse mouth with water. Contact physician if larger quantity has been consumed. Get medical attention if any discomfort continues.

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

Information for health personnel
Treat Symptomatically. Do not give victim anything to drink if he is unconscious.

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

Specific details on antidotes
No recommendation given.

SECTION 5: Firefighting measures
5.1. Extinguishing media
Suitable extinguishing media: Extinguish with alcohol-resistant foam, carbon dioxide, dry powder or water fog.
Improper extinguishing media: Do not use water jet as an extinguisher, as this will spread the fire.

5.2. Special hazards arising from the substance or mixture
Fire and explosion hazards: HIGHLY FLAMMABLE! Vapours are heavier than air and may spread near ground to sources of ignition. Solvent vapours may form explosive mixtures with air.

5.3. Advice for firefighters
Fire fighting procedures: No specific fire fighting procedure given.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Personal protection measures: Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Ventilate well. Stop leak if possible without risk. Avoid contact with skin and eyes. Do not breathe vapour. For personal protection, see section 8.

6.2. Environmental precautions
Environmental precautionary measures: Avoid discharge into drains, water courses or onto the ground.

6.3. Methods and material for containment and cleaning up
Cleaning method: Dam and absorb spillages with sand, earth or other non-combustible material. Collect spillage in containers, seal securely and deliver for disposal according to local regulations.

6.4. Reference to other sections
Other instructions: Information regarding exposure / personal protection and disposal, see section 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling
Handling: Keep away from heat, sparks and open flame. Take precautionary measures against static discharges. Mechanical ventilation may be required.

Protective Safety Measures
Advice on general occupational hygiene: Provide easy access to water supply and eye wash facilities.

7.2. Conditions for safe storage, including any incompatibilities
Storage: Keep away from heat, sparks and open flame. Ground container and transfer equipment to eliminate static electric sparks. Store in a cool and well-ventilated place.

7.3. Specific end use(s)
Specific use(s): Not entered.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters
Other Information about threshold limit values: Norske grenseverdier; FOR-2011-12-06-1358 vedlegg 1.
Butanon: 8 t.: 75ppm, 220 mg/m3 (2003)

DNEL / PNEC
Method of testing: Contents
DNEL: Group: Worker
Exposure route: Dermal
Exposure frequency: Long term (repeated)
Type of effect: Systemic effect
Value: 1161 mg/kg

**DNEL**
Group: Worker
Exposure route: Inhalation
Exposure frequency: Long term (repeated)
Type of effect: Systemic effect
Value: 600 mg/m³

**DNEL**
Group: Consumer
Exposure route: Oral
Exposure frequency: Long term (repeated)
Type of effect: Systemic effect
Value: 31 mg/kg

**DNEL**
Group: Consumer
Exposure route: Dermal
Exposure frequency: Long term (repeated)
Type of effect: Systemic effect
Value: 412 mg/kg

**DNEL**
Group: Consumer
Exposure route: Inhalation
Exposure frequency: Long term (repeated)
Type of effect: Systemic effect
Value: 106 mg/m³

**Exposure guidelines**
Country of origin: Sverige
Limit value type: KTV
OEL Short Term Value: 300 mg/m³
Source: Nationella hygieniska gränsvärden, AFS 2005:17

**Other Information**
NGV, 150 mg/m³
TWA, 200 ppm
STEL, 300 ppm

8.2. Exposure controls

**Occupational exposure limits**
Provide adequate ventilation. Observe Occupational Exposure Limits and minimise the risk of inhalation of vapours. Protective gloves and goggles are recommended. Provide eyewash, quick drench.

**Safety signs**

<table>
<thead>
<tr>
<th><strong>Respiratory protection</strong></th>
<th>Respiratory protection must be used if air contamination exceeds acceptable level. Use respiratory equipment with gas filter, type A2.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hand protection</strong></td>
<td>Use protective gloves. Chemical resistant gloves required for prolonged or repeated contact.</td>
</tr>
<tr>
<td><strong>Eye / face protection</strong></td>
<td>Use safety goggles or face shield in case of splash risk.</td>
</tr>
<tr>
<td><strong>Skin protection</strong></td>
<td>Wear appropriate clothing to prevent any possibility of skin contact.</td>
</tr>
<tr>
<td><strong>Hygiene / Environmental</strong></td>
<td>Wash hands after contact.</td>
</tr>
</tbody>
</table>

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties
### Methyl ethyl ketone (MEK)

**Colour**
Colourless.

**Odour**
Characteristic.

**Comments, pH (as supplied)**
Not relevant.

**Melting point/melting range**
Value: -86 °C

**Boiling point / boiling range**
Value: 82 °C

**Flash point**
Value: -9 °C

**Explosion limit**
Value: 1.8-11.5 %

**Vapour pressure**
Value: 12.6 kPa
Test temperature: 20 °C

**Vapour density**
Value: 2.4
Test temperature: 20 °C

**Specific gravity**
Value: 804-806 kg/m3
Test temperature: 20 °C

**Solubility description**
Soluble in: Alcohol.

**Solubility in water**
250 g/l (20 °C)

**Partition coefficient: n-octanol/water**
Value: 0.3

**Spontaneous combustability**
Value: 515 °C

**Viscosity**
Value: 0.42 mPas
Test temperature: 20 °C

**Test temperature:** 20 °C

### 9.2. Other information

#### SECTION 10: Stability and reactivity

**10.1. Reactivity**
Heating may cause a fire.

**10.2. Chemical stability**
Stable under the prescribed storage conditions.

**10.3. Possibility of hazardous reactions**
Not known.

**10.4. Conditions to avoid**
Avoid heat, flames and other sources of ignition.

**10.5. Incompatible materials**
Avoid contact with oxidising agents (e.g. nitric acid, peroxides and chromates). Strong acids.

**10.6. Hazardous decomposition products**
Fire creates: Carbon monoxide (CO). Carbon dioxide (CO2).

#### SECTION 11: Toxicological information

**11.1. Information on toxicological effects**

**Toxicological Information:**

Other toxicological data
- Acute Toxicity (Oral LD50): mg/kg (oral rat) > 2000 - ≤ 5000
- Acute Toxicity (Inhalation LC50): > 5000 ppm
- Acute Toxicity (Dermal LD50): Rabbit mg/kg > 5000

**Potential acute effects**

**Inhalation**
In high concentrations, vapours are narcotic and may cause headache, fatigue, dizziness and nausea. Icke klassificerad som aspirationstoxisk (Not classified as asp. tox.)

**Skin contact**
Prolonged or frequent contact may cause redness, itching, eczema and skin cracking. Defats the skin.

**Eye contact**
Causes serious eye irritation.

**Ingestion**
Ingestion of large amounts may cause unconsciousness. However, ingestion may cause nausea, headache, dizziness and intoxication. Ingestion may cause irritation of the gastrointestinal tract, vomiting and diarrhoea. May cause
irritation to the mouth and throat.

**Delayed effects / repeated exposure**

Sensitisation Not known.
Chronic effects None known.

**Carcinogenic, Mutagenic or Reprotoxic**

Carcinogenicity Not known.
Mutagenicity Not known.
Teratogenic properties Not known.
Reproductive toxicity Not known.

**SECTION 12: Ecological information**

**12.1. Toxicity**

<table>
<thead>
<tr>
<th>Acute aquatic, fish</th>
<th>Value: &gt; 100 mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Method of testing: LL/EL/IL50</td>
</tr>
<tr>
<td>Acute aquatic, algae</td>
<td>Value: &gt; 100 mg/l</td>
</tr>
<tr>
<td></td>
<td>Method of testing: LL/EL/IL50</td>
</tr>
<tr>
<td>Acute aquatic, Daphnia</td>
<td>Value: &gt; 100 mg/l</td>
</tr>
<tr>
<td></td>
<td>Method of testing: LL/EL/IL50</td>
</tr>
</tbody>
</table>

**12.2. Persistence and degradability**

Degradation half life Lättnedbrytbart. 100% bryts ned på 28 dygn OECD 301D.
Comments, BOD BOD5/COD: 0,66-0,87
Persistence and degradability Log Pow: 0,61

**12.3. Bioaccumulative potential**

Bioaccumulative potential Will not bio-accumulate.

**12.4. Mobility in soil**

Mobility The product is water soluble and may spread in water systems.
Surface tension Value: 24,8 mN/m (20 °C)

**12.5. Results of PBT and vPvB assessment**

PBT assessment results This substance is not classified as PBT or vPvB.

**12.6. Other adverse effects**

Other adverse effects / Remarks None known.

**SECTION 13: Disposal considerations**

**13.1. Waste treatment methods**

Specify the appropriate methods of disposal
Confirms disposal procedures with environmental engineer and local regulations.
Absorb in vermiculite or dry sand and dispose of at a licenced hazardous waste collection point. Liquid components can be disposed of by incineration.

<table>
<thead>
<tr>
<th>Product classified as hazardous waste</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packaging classified as hazardous waste</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**SECTION 14: Transport information**

**14.1. UN number**

<table>
<thead>
<tr>
<th>ADR</th>
<th>1193</th>
</tr>
</thead>
<tbody>
<tr>
<td>RID</td>
<td>1193</td>
</tr>
<tr>
<td>IMDG</td>
<td>1193</td>
</tr>
<tr>
<td>ICAO/IATA</td>
<td>1193</td>
</tr>
</tbody>
</table>

**14.2. UN proper shipping name**

<table>
<thead>
<tr>
<th>ADR</th>
<th>METHYL ETHYL KETONE</th>
</tr>
</thead>
<tbody>
<tr>
<td>RID</td>
<td>METHYL ETHYL KETONE</td>
</tr>
</tbody>
</table>
IMDG
ICAO/IATA
METHYL ETHYL KETONE
METHYL ETHYL KETONE

14.3. Transport hazard class(es)
ADR 3
Hazard no. 33
RID 3
ADN 33
IMDG 3
ICAO/IATA 3

14.4. Packing group
ADR II
RID II
IMDG II
ICAO/IATA II

14.5. Environmental hazards
Comments Not relevant.

14.6. Special precautions for user
EmS F-E, S-D

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Ship type required 3
Pollution category Z

SECTION 15: Regulatory information
EC no. 201-159-0

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
Legislation and regulations Dangerous Substance Directive 67/548/EEC.

15.2. Chemical safety assessment

SECTION 16: Other information

Hazard symbol

R-phrases
R11 Highly flammable.
R36 Irritating to eyes.
R66 Repeated exposure may cause skin dryness or cracking.
R67 Vapours may cause drowsiness and dizziness.

S-phrases
S2 Keep out of the reach of children.
S7 Keep container tightly closed.
S16 Keep away from sources of ignition - No smoking.

Classification according to Flam. Liq. 2; H225;
Regulation (EC) No 1272/2008 [CLP/GHS]

List of relevant R-phrases (under headings 2 and 3).
- R36 Irritating to eyes.
- R11 Highly flammable.
- R67 Vapours may cause drowsiness and dizziness.
- R66 Repeated exposure may cause skin dryness or cracking.

List of relevant H-phrases (Section 2 and 3).
- H225 Highly flammable liquid and vapour.
- H336 May cause drowsiness or dizziness.
- H319 Causes serious eye irritation.

Version
1

Responsible for safety data sheet
Fred Holmberg & Co AB