SAFETY DATA SHEET

Methyl ethyl ketone (MEK)

SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Methyl ethyl ketone (MEK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>2-Butanone, 3-Butanone, methyl acetone, Ethyl methyl ketone</td>
</tr>
<tr>
<td>Use</td>
<td>Catalyst production, Industrial &amp; Institutional cleaning, Industrial use, Intermediate, Paint and Coatings, Pharmaceutical, Process/Extraction Solvent, Process material, Raw material for chemical processes, Raw material for industry, Raw material for pharmaceuticals, Solvent</td>
</tr>
<tr>
<td>Company</td>
<td>Sasol Chemicals (USA) LLC</td>
</tr>
<tr>
<td>Address</td>
<td>12120 Wickchester Lane   Houston TX 77079</td>
</tr>
<tr>
<td>Telephone</td>
<td>CHEMTREC North America Transportation Emergency (24-hr)</td>
</tr>
<tr>
<td></td>
<td>(800) 424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC World Wide</td>
</tr>
<tr>
<td></td>
<td>(703) 527-3887</td>
</tr>
<tr>
<td></td>
<td>Other Emergencies (24-hr)</td>
</tr>
<tr>
<td></td>
<td>(337) 494-5142</td>
</tr>
<tr>
<td></td>
<td>MSDS and Product Information (8:00am-4:30pm CST)</td>
</tr>
<tr>
<td></td>
<td>(281) 588-3491</td>
</tr>
<tr>
<td></td>
<td>Health and Safety Information (7:30am-4:00pm CST)</td>
</tr>
<tr>
<td></td>
<td>(281) 588-3492</td>
</tr>
<tr>
<td>E-mail address</td>
<td><a href="mailto:SasolElectronicSDS@us.sasol.com">SasolElectronicSDS@us.sasol.com</a></td>
</tr>
</tbody>
</table>

SECTION 2 HAZARDS IDENTIFICATION

GHS Hazards

| Flammable liquids | Category 2 |
| Eye irritation    | Category 2A |
| Specific target organ toxicity - single exposure | Category 3 (Narcotic effects) |

LABEL ELEMENTS

Hazard symbols

![Flammable and Caution Icon]

Signal word  Danger

Hazard statements

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

Precautionary statements

Prevention

P210  Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P233  Keep container tightly closed.
P240  Ground/bond container and receiving equipment.
SAFETY DATA SHEET

Methyl ethyl ketone (MEK)

**P241** Use explosion-proof electrical/ ventilating/ lighting/ equipment.
**P242** Use only non-sparking tools.
**P243** Take precautionary measures against static discharge.
**P280** Wear protective gloves/ eye protection/ face protection.
**P264** Wash skin thoroughly after handling.
**P261** Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
**P271** Use only outdoors or in a well-ventilated area.

**Response**
**P303 + P361 + P353** IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
**P370 + P378** In case of fire: Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide for extinction.
**P305 + P351 + P338** IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
**P337 + P313** If eye irritation persists: Get medical advice/ attention.
**P304 + P340** IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
**P312** Call a POISON CENTER or doctor/ physician if you feel unwell.

**Storage**
**P403 + P405 + P235** Store locked up in a well-ventilated place. Keep cool.

---

**SECTION 3**
**COMPOSITION/INFORMATION ON INGREDIENTS**

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl ethyl ketone</td>
<td>78-93-3</td>
<td>99.5</td>
</tr>
</tbody>
</table>

See Section 8 for Exposure Guidelines and Section 15 for Regulatory Classifications.

---

**SECTION 4**
**FIRST AID MEASURES**

**Eye contact** Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

**Skin contact** Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. When symptoms persist or in all cases of doubt seek medical advice. Wash contaminated clothing before re-use.

**Inhalation** Remove to fresh air. If breathing is irregular or stopped, administer artificial respiration. In case of shortness of breath, give oxygen. Call a physician immediately.

**Ingestion** If swallowed, call a poison control centre or doctor immediately. Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person.

---

**SECTION 5**
**FIREFIGHTING MEASURES**

**FLAMMABLE PROPERTIES**
**Fire/explosion** Vapours may form explosive mixture with air. Flash back possible over considerable distance.
Methyl ethyl ketone (MEK)

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

Protective equipment and precautions for firefighters
In the event of fire, wear self-contained breathing apparatus.

Further information
Keep containers and surroundings cool with water spray. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Methods and materials for containment and cleaning up
Evacuate personnel to safe areas. Remove all sources of ignition. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). Do not flush into surface water or sanitary sewer system.

SECTION 7 HANDLING AND STORAGE

Safe handling advice
Ensure all equipment is electrically grounded before beginning transfer operations. Keep away from heat and sources of ignition.

Storage/Transport pressure
Ambient

Load/Unload temperature
Ambient

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING MEASURES
Air contaminant levels should be controlled below the PEL or TLV for this product (see Exposure Guidelines). Ensure adequate ventilation, especially in confined areas. Use explosion-proof equipment.

PERSONAL PROTECTIVE EQUIPMENT

Eyes
Chemical resistant goggles must be worn., Face-shield

Skin
Wear suitable protective clothing, gloves and eye/face protection.

Inhalation
Respiratory protection is normally not required except in emergencies or when conditions cause excessive airborne levels of mists or vapors. Use NIOSH approved respiratory protection.

EXPOSURE GUIDELINES

<table>
<thead>
<tr>
<th>Components</th>
<th>Exposure limit(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methyl ethyl ketone</td>
<td>ACGIH TLV (8-hour) 200 ppm 590 mg/m³</td>
</tr>
<tr>
<td></td>
<td>ACGIH STEL 300 ppm 885 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL 200 ppm 590 mg/m³</td>
</tr>
</tbody>
</table>
Methyl ethyl ketone (MEK)

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Appearance: liquid;
Colour: Clear, colorless
Form: liquid
Odour: characteristic
Odour Threshold: no data available
Flash point: -6 °C, 21 °F;
Flammability: Upper explosion limit: 11.5 % (V)
Lower explosion limit: 1.5 % (V)
Boiling point/boiling range: 79.6 °C, 175.6 °F;
Melting point/range: -86 °C, -123 °F;
Auto-ignition temperature: 404 °C, 759 °F;
Decomposition temperature: no data available
Flammability (solid, gas): no data available
Vapour pressure: 126 hPa @ 25 °C, 77 °F;
Vapour density: 1.15
Density: 0.805 g/cm³ @ 20 °C, 68 °F;
Specific gravity: no data available
Water solubility: partly miscible
Viscosity: no data available
Viscosity, dynamic: 0.40 mPa.s @ 20 °C, 68 °F; DIN 53015;
Methyl ethyl ketone (MEK)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
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<tbody>
<tr>
<td>pH</td>
<td>no data available</td>
</tr>
<tr>
<td>Evaporation rate</td>
<td>no data available</td>
</tr>
<tr>
<td>Partition coefficient: n-octanol/water</td>
<td>log Pow: 0.3; @ 40 °C, 104 °F;</td>
</tr>
<tr>
<td>Volatile organic compounds (VOC) content</td>
<td>100 %</td>
</tr>
</tbody>
</table>

SECTION 10 STABILITY AND REACTIVITY

Reactivity: Vapours may form explosive mixture with air.

Chemical stability: No decomposition if stored and applied as directed.

Conditions to avoid: Extremes of temperature and direct sunlight.

Hazardous decomposition products: None known.

Materials to avoid: Oxidizing agents

Hazardous polymerisation: May form explosive peroxides.

SECTION 11 TOXICOLOGICAL INFORMATION

Acute dermal toxicity: LD50 rabbit: > 2,000 mg/kg (literature value)

Acute inhalation toxicity: no data available

Acute oral toxicity: LD50 rat: > 2,000 mg/kg (literature value)

Skin corrosion/irritation: slight irritation, (literature value)

Eye damage/irritation: Irritating, (literature value)

Respiratory or skin sensitization: guinea pig: not sensitizing; Maximisation Test (literature value)

Germ cell mutagenicity: Genotoxicity in vitro:
Type: Ames test
System: Salmonella typhimurium; with and without metabolic activation
Result: In vitro tests did not show mutagenic effects. (literature value)
Methyl ethyl ketone (MEK)

Genotoxicity in vivo:  
no data available

Assessment Mutagenicity:  
Based on available data, the classification criteria are not met.

Reproductive toxicity:  
no data available

Assessment Reproductive toxicity:  
no data available

Teratogenicity:  
no data available

Assessment teratogenicity:  
no data available

STOT - single exposure:  
The substance or mixture is classified as specific target organ toxicant, single exposure, category 3 with narcotic effects.

STOT - repeated exposure:  
no data available

Aspiration toxicity:  
no data available

Carcinogenicity:  
Assessment carcinogenicity:  
Contains no ingredient listed as a carcinogen

SECTION 12 ECOLOGICAL INFORMATION

Toxicity to fish:  
LC50 (Pimephales promelas (fathead minnow)) 96 hours: > 100 mg/l; static test (literature value)

Toxicity to aquatic invertebrates:  
EC50 (Daphnia magna (Water flea)) 48 hours: > 100 mg/l; static test (literature value)

Toxicity to algae:  
EC50 (Pseudokirchneriella subcapitata (green algae)) 96 hours: > 100 mg/l; static test (literature value)

Biodegradation:  
Readily biodegradable.

OECD Test Guideline 301D (28 d): > 60 % (literature value)

Bioaccumulation:  
No bioaccumulation is to be expected (log Pow <= 4).

Mobility in soil:  
no data available

Other adverse effects:  
This substance is not considered to be persistent, bioaccumulating nor toxic (PBT).
Methyl ethyl ketone (MEK)

SECTION 13 DISPOSAL CONSIDERATIONS

Waste Code U159.D001 - Ignitability (RQ 100 LB). Re-evaluation of the product may be required by the user at the time of disposal, since the product uses, transformations, mixtures, contamination, and spillage may change the classification.

Disposal methods Dispose of only in accordance with local, state, and federal regulations. Do not contaminate any lakes, streams, ponds, groundwater or soil.

Empty containers. Empty containers retain product residue (liquid and/or vapor) and can be dangerous. DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION; THEY MAY EXPLODE AND CAUSE INJURY OR DEATH. Empty drums should be completely drained, triple-rinsed, properly bunged and promptly returned to a drum reconditioner, or properly disposed.

SECTION 14 TRANSPORT INFORMATION

DOT UN 1193, Methyl Ethyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.

IATA UN 1193, Methyl Ethyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.

IMDG UN 1193, Methyl Ethyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Remarks no data available

SECTION 15 REGULATORY INFORMATION

U.S. FEDERAL REGULATIONS

OSHA Hazards (HCS 1994)
Flammable liquid, Eye irritant, Respiratory irritant

TSCA Inventory Listing
Components 2-Butanone
CAS-No. 78-93-3

SARA 302 Status
Components
CAS-No. Weight percent
Methyl ethyl ketone (MEK)

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 311/312 Classification
"Fire hazard", "Immediate (acute) health hazard"

SARA 313 Chemical Components
SARA 313: 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.

US. EPA CERCLA Hazardous Substances (40 CFR 302)

<table>
<thead>
<tr>
<th>Components</th>
<th>Reportable Quantity</th>
<th>Weight percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Butanone</td>
<td>5,000 LB</td>
<td>99.5%</td>
</tr>
</tbody>
</table>

INTERNATIONAL REGULATIONS

WHMIS Classification
Class B, Division 2: Flammable liquid.
Class D, Division 2, Subdivision B: Toxic material.

European Union
Classification according to Regulation (EU) 1272/2008.

- Flammable liquids, Category 2
- Eye irritation, Category 2
- Specific target organ toxicity - single exposure, Category 3 (Narcotic effects)

Australia. Inventory of Chemical Substances (AICS) Listed
Japan. Inventory of Existing and New Chemical Substances (ENCS) Listed
Japan. Industrial Safety & Health Law (ISHL) Inventory Listed
Canada. Domestic Substances List (DSL) Inventory Listed
Canadian Non-Domestic Substance Listing (NDSL) Not listed
European Inventory of Existing Commercial Chemical Substances (EINECS) Listing Listed
Philippines. Inventory of Chemicals / Chemical Substances (PICCS) Listed
Korea. Existing Chemicals Inventory (KECI) Listed
China. Inventory of Existing Chemical Substances (IECSC) Listed
Mexico. National Inventory of Chemical Substances (INSQ) Listed
New Zealand. Inventory of Chemicals (NZIoC) Listed
Switzerland. Inventory of Notified New Substances (CHINV) Listed
Taiwan. National Existing Chemical Inventory (NECI) Listed
SAFETY DATA SHEET

Methyl ethyl ketone (MEK)

Please note: The names and CAS numbers which are used for this product in the stated inventories may deviate from the information which is listed in Section 3.

STATE REGULATIONS

California Prop. 65

Components  
none

CAS-No.

SECTION 16  OTHER INFORMATION

HAZARD RATINGS

<table>
<thead>
<tr>
<th>HMIS®</th>
<th>Health</th>
<th>Flammability</th>
<th>Physical Hazard/ Instability</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>NFPA</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

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