Methyl ethyl ketone (MEK)

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

Trade name Methyl ethyl ketone (MEK)
Synonyms 2-Butanone, 3-Butanone, methyl acetone, Ethyl methyl ketone
Use Catalyst production, Industrial & 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
Company Sasol Chemicals (USA) LLC
(an affiliate of Sasol Chemicals North America LLC)
Address 12120 Wickchester Lane  Houston TX 77079
Telephone CHEMTREC North America Transportation Emergency (24-hr) (800) 424-9300
CHEMTREC World Wide (703) 527-3887
Other Emergencies (24-hr) (337) 494-5142
SDS and Product Information (8:00am-4:30pm CST) (281) 588-3491
Health and Safety Information (7:30am-4:00pm CST) (281) 588-3492
E-mail address SasolElectronicSDS@us.sasol.com

SECTION 2 HAZARDS IDENTIFICATION

OSHA/GHS Hazards Flammable liquids Category 2
Eye irritation Category 2A
Specific target organ toxicity - single exposure Category 3 (Narcotic effects)

LABEL ELEMENTS

Hazard symbols

Signal word Danger

Hazard statements H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
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.
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/doctor 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.
Methyl ethyl ketone (MEK)

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. Use water spray to disperse the vapors. NFPA Class 1B flammable liquid.

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 (Short Term Exposure Limit) 300 ppm 885 mg/m³</td>
</tr>
<tr>
<td></td>
<td>OSHA PEL (Permissible Exposure Limit) 200 ppm 590 mg/m³</td>
</tr>
</tbody>
</table>

PEL= Permissible Exposure Limits  
TLV= Threshold Limit Value  
EL= Excursion Limit  
TWA= Time Weighted Average (8 hr.)  
STEL= Short Term Exposure Limit (15 min.)  
WEEL= Workplace Environmental Exposure Level

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
Methyl ethyl ketone (MEK)

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;
pH No data available
Evaporation rate No data available
Partition coefficient: n-octanol/water log Pow: 0.3; @ 40 °C, 104 °F;
Volatile organic compounds (VOC) content 100 %

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 No data available
Methyl ethyl ketone (MEK)

Toxicity

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

**Skin corrosion/irritation**  
(Rabbit)  
slight irritation, (literature value)

**Serious eye damage/eye irritation**  
(Rabbit)  
irritating, (literature value)

**Respiratory or skin sensitisation**  
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)

**Genotoxicity in vivo:**  
No data available

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

**Reproductive toxicity**  
**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
Methyl ethyl ketone (MEK)

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)

Bioaccumulative potential  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 and toxic (PBT).

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.
Methyl ethyl ketone (MEK)

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

TSCA Inventory Listing

Components  CAS-No.
2-Butanone  78-93-3

SARA 302 Status

Components  CAS-No.  Weight percent
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  CAS-No.  Weight percent
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)

Components  Reportable Quantity  Weight percent
2-Butanone  5,000 LB  99.5 %

INTERNATIONAL REGULATIONS

WHMIS Classification

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

Methyl ethyl ketone (MEK)

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. ISHL - Inventory of Chemical Substances Listed
Canada. Domestic Substances List (DSL) Inventory Listed
Canada. Non-Domestic Substance Listing (NDSL) Not listed
Philippines. Inventory of Chemicals / Chemical Substances (PICCS) Listed
Korea. Existing Chemicals Inventory (KECI) Listed
China. Inventory of Existing Chemical Substances (IECSC) Listed
Mexico Listed
New Zealand. Inventory of Chemical Substances Listed
Switzerland Listed
Taiwan. National Existing Chemical Inventory (NECI) Listed

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>NFPA</td>
<td>2</td>
<td>3</td>
<td>0</td>
</tr>
</tbody>
</table>

Revision Date 05/04/2018 Version 1.2 Print Date 05/17/2018 110000000947 Page 9 of 10
SAFETY DATA SHEET

Methyl ethyl ketone (MEK)

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