# SAFETY DATA SHEET

## Methyl isobutyl ketone (MIBK)

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

<table>
<thead>
<tr>
<th>Trade name</th>
<th>Methyl isobutyl ketone (MIBK)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Synonyms</td>
<td>2-methyl-4-pentanone, 2-methylpropyl methyl ketone, 2-pentanone, hexone, isobutyl methyl ketone</td>
</tr>
<tr>
<td>Use</td>
<td>Catalyst production, Industrial use, Intermediate, Paint and Coatings, Pharmaceutical, Process/Extraction Solvent, Process material, Raw material for chemical processes, Raw material for industry, Solvent</td>
</tr>
<tr>
<td>Company</td>
<td>Sasol Chemicals (USA) LLC (an affiliate of Sasol Chemicals North America 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) (800) 424-9300</td>
</tr>
<tr>
<td></td>
<td>CHEMTREC World Wide (703) 527-3887</td>
</tr>
<tr>
<td></td>
<td>Other Emergencies (24-hr) (337) 494-5142</td>
</tr>
<tr>
<td></td>
<td>SDS and Product Information (8:00am-4:30pm CST) (281) 588-3491</td>
</tr>
<tr>
<td></td>
<td>Health and Safety Information (7:30am-4:00pm CST) (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
- Acute toxicity (Inhalation) Category 4
- Eye irritation Category 2A
- Specific target organ toxicity - single exposure Category 3 (Resp. irritation)

#### LABEL ELEMENTS

- **Hazard symbols**
  - [Flammable]
  - [Danger]

- **Signal word** Danger

- **Hazard statements**
  - H225 Highly flammable liquid and vapour.
  - H319 Causes serious eye irritation.
  - H332 Harmful if inhaled.
  - H335 May cause respiratory irritation.
Methyl isobutyl ketone (MIBK)

**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/protective clothing/eye protection/face protection.
P261  Avoid breathing dust/fume/gas/mist/vapours/spray.
P264  Wash skin thoroughly after handling.
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.

**Disposal**

P501  Dispose of contents/container to an approved waste disposal plant.

### 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 isobutyl ketone</td>
<td>108-10-1</td>
<td>100</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 isobutyl ketone (MIBK)

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.
Methyl isobutyl ketone (MIBK)

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 isobutyl ketone</td>
<td>OSHA PEL 100 ppm 410 mg/m3 ACGIH TLV (8-hour) 20 ppm ACGIH STEL 75 ppm</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 14 °C, 57.2 °F;

Flammability Upper explosion limit: 8.0 % (V)
Lower explosion limit: 1.2 % (V)

Boiling point/boiling range 117 °C, 243 °F;

Melting point/range -84 °C, -119.2 °F;

Auto-ignition temperature 460 °C, 860 °F;

Decomposition temperature Distills without decomposition at atmospheric pressure.

Flammability (solid, gas) no data available

Vapour pressure 20.2 hPa @ 20 °C, 68 °F;

Vapour density 3.45
Methyl isobutyl ketone (MIBK)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
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<tbody>
<tr>
<td>Density</td>
<td>0.7978 g/cm³ @ 20 °C, 68 °F;</td>
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<tr>
<td>Specific gravity</td>
<td>no data available</td>
</tr>
<tr>
<td>Water solubility</td>
<td>immiscible</td>
</tr>
<tr>
<td>Viscosity</td>
<td>no data available</td>
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<tr>
<td>Viscosity, dynamic</td>
<td>0.585 mPa.s @ 20 °C, 68 °F;</td>
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<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>Pow: 79; log Pow: 1.9;</td>
</tr>
<tr>
<td>Volatile organic compounds (VOC)</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**
  LC50 Rat (4 hours): > 10 - 20 mg/l (literature value)

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

- **Skin corrosion/irritation**
  Slight irritation, (literature value)

- **Eye damage/irritation**
  (Rabbit)
Methyl isobutyl ketone (MIBK)

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)

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 respiratory tract irritation.

**STOT - repeated exposure**
no data available

**Aspiration toxicity**
no data available

**Carcinogenicity**
Assessment carcinogenicity:
MIBK has caused cancer in some laboratory animals. These effects are believed to be species-specific and unlikely to occur in humans.

**Carcinogenicity ratings**

Methyl isobutyl ketone
IARC Group 2B: Possibly carcinogenic to humans

**SECTION 12 ECOLOGICAL INFORMATION**

**Toxicity to fish**
LC50 (Danio rerio (zebra fish)) 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)
SAFETY DATA SHEET

Methyl isobutyl ketone (MIBK)

**Toxicity to algae**
no data available

**Chronic toxicity to aquatic invertebrates**
NOEC (Daphnia magna (Water flea)) 21 d: > 10 - 100 mg/l; semi-static test; OECD Test Guideline 211 (literature value)

**Biodegradation**
Readily biodegradable

OECD Test Guideline 301F (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 and toxic (PBT).

**SECTION 13 DISPOSAL CONSIDERATIONS**

**Waste Code**
D001 - Ignitability (RQ 100 LB).U161 (RQ 5,000 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 1245, Methyl Isobutyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.

**IATA**
UN 1245, Methyl Isobutyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.

**IMDG**
UN 1245, Methyl Isobutyl Ketone, 3, II
When shipped in quantities greater than 5,000 lbs, RQ must be added to the shipping description.
Methyl isobutyl ketone (MIBK)

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, Respiratory irritant, Eye irritant

TSCA Inventory Listing
Components CAS-No.
2-Pentanone, 4-methyl- 108-10-1

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
2-Pentanone, 4-methyl- 108-10-1 100 %

US. EPA CERCLA Hazardous Substances (40 CFR 302)
Components Reportable Quantity Weight percent
2-Pentanone, 4-methyl- 5,000 LB 100 %

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
Acute toxicity (Inhalation), Category 4
Eye irritation, Category 2
Specific target organ toxicity - single exposure, Category 3 (Resp. irritation)

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
Methyl isobutyl ketone (MIBK)

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

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 2-Pentanone, 4-methyl-
CAS-No. 108-10-1

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

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