Methyl isobutyl ketone (MIBK)

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

Trade name	Methyl isobutyl ketone (MIBK)	
Synonyms	2-methyl-4-pentanone, 2-methylproyl methyl ketone, 2-pentanoe, hexone, isobutyl methyl ketone	
Use	Catalyst production, Industrial use, Intermediate, Paint and Coatings, Pharmaceutical, Process/Extraction Solvent, Process material, Raw material for chemical processes, Raw material for industry, 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
	Acute toxicity (Inhalation)	Category 4
	Eye irritation	Category 2A
	Specific target organ toxicity - single exposure	Category 3 (Resp. irritation)

LABEL ELEMENTS

Hazard symbols

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.

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.
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

Components	CAS-No.	Weight percent
Methyl isobutyl ketone	108-10-1	100

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. 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.

Methyl isobutyl ketone (MIBK)

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

Components	Exposure limit(s)
Methyl isobutyl ketone	OSHA PEL (Permissible Exposure Limit) 100 ppm 410 mg/m3 ACGIH TLV (8-hour) 20 ppm ACGIH STEL (Short Term Exposure Limit) 75 ppm

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

Methyl isobutyl ketone (MIBK)

Flammability (solid, gas)	No data available
Vapour pressure	20.2 hPa @ 20 °C, 68 °F;
Vapour density	3.45
Density	0.7978 g/cm3 @ 20 °C, 68 °F;
Relative density	No data available
Water solubility	immiscible
Viscosity	No data available
Viscosity, dynamic	0.585 mPa.s @ 20 °C, 68 °F;
pH	No data available
Evaporation rate	No data available
Partition coefficient: n-octanol/water	Pow: 79; log Pow: 1.9;
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.

Methyl isobutyl ketone (MIBK)

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
(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 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)

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)

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 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.

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-Pentanone, 4-methyl-	108-10-1

All chemical substances in this product are either on the TSCA Active Inventory, or in compliance with the inventory.

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

Flammable liquids, Acute toxicity, Eye irritation, Specific target organ toxicity - single exposure

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

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

Remarks

Carcinogenic Category 2, Contains material which may cause cancer based on animal data.

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. 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. National Inventory of Chemical Substances (INSQ)	Listed
New Zealand. Inventory of Chemical Substances (NZIoC)	Listed
Switzerland. Inventory of Notified New Substances (CHINV)	Listed

Methyl isobutyl ketone (MIBK)

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

SECTION 16 OTHER INFORMATION

HAZARD RATINGS

	Health	Flammability	Physical Hazard/ Instability
HMIS®	2	3	0
NFPA	2	3	0

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