

beyond the best

KUMHO P&B CHEMICALS

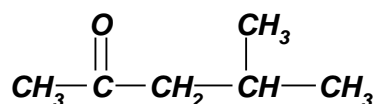
Methyl isobutyl ketone

MIBK

DATA SHEET

Description

MIBK(Methyl Isobutyl ketone), also referred to as Isopropyl acetone, Hexanone, 4-Methyl-2-pentanone, which is clear, colorless, flammable, volatile liquid, with an odor. MIBK is produced through a catalyzed reaction of acetone with hydrogen. It is an active solvent for synthetic resins including cellulose, vinyl copolymer, acrylics, alkyds, polyesters, epoxides, coatings and ink. Health and safety information is available through the appropriate Material Safety Data Sheet(MSDS).



CAS Registry Number 108-10-1
EINECS Number 203-550-1

Sales specification

Property	Unit	Value	Test method
Color	Pt-Co Scale	10 max	ASTM D 1209
Water content	% wt	0.1 max	ASTM D 1364
Purity	% wt.	99.5 min	ASTM D 3329
Density at 20℃	g/ml	0.799 ~ 0.802	ASTM D4052
Distillation TEST, IBP	℃	114.0 min.	ASTM D 1078
DP	℃	117.0 max.	ASTM D 1078
Acidity	wt. %	0.002 max	ASTM D 1613

Physical properties of pure product

Property	Unit	Value
Appearance		Clear, colorless liquid
Autoignition temperature	°C	449 (840.2°F)
Boiling point(760mm)	°C	116.5(389.6°F)
Density at 20°C	g/cm ³	0.801
Electrical conductivity at 20°C	pS/m	3×10^7
Empirical formula		CH ₃ COCH ₂ CH (CH ₃) ₂
Evaporation rate(Butyl Acetate = 1) (Ether = 1)		1.6 7.2
Flammable limits in air	% vol.	1.3 – 8.0
Flash Point	°C	14
Heat of Combustion	kJ / kg	30730
Heat of vaporization at T(boiling point)	kJ / kg	364
Azeotrope with Water Boiling Point MIBK content	°C wt %	87.9 75.7
Freezing point	°C	-84.0
Molecular weight		100.16
Miscibility at 20 °C MIBK in water Water in MIBK	wt %	2.0 2.4
Odor		Slight camphor odor

Property	Unit	Value
Refractive index n _{20/D}		1.396
Solubility in water, at 25 °C	g/100 mL	1.9
Specific gravity at 20/4 °C 10/20 °C 20/20 °C 30/20 °C 40/20 °C		0.801 0.811 0.802 0.793 0.784
Surface tension at 0 °C 20 °C 40 °C	mN/m	26 24 22
Vapor pressure at 0 °C 10 °C 20 °C 30 °C 40 °C 50 °C	mm Hg	4.2 8.0 14.7 25.6 42.7 68.6
Viscosity at 0 °C 20 °C 40 °C	mPa.s	0.77 0.59 0.47

All properties at 20°C unless otherwise stated.

⁽¹⁾ The vapour pressure, between the specified temperature limits, can be calculated using the Antoine equation:

$$\log_{10} P = \frac{A - B}{T + C}, \text{ where } P \text{ is the vapour pressure in kPa and } T \text{ is the temperature in } ^\circ\text{C}.$$

For more information please refer to MSDS, available from your local sales representatives.

Solvent properties

Property	Value	Test method
Hildebrand solubility parameter	8.4	
Hydrogen bonding index	10.5	
Fractional polarity	0.315	
Relative evaporation rate (nBuAc=1)	1.6	ASTM D 3539
Relative evaporation rate (ether=1)	7.2	DIN 53170

Safety data

Property	Unit	Value	Test method
Flash point (Abel)	°C	47	IP 170
Lower explosive limit in air	% v/v	0.8	
Upper explosive limit in air	% v/v	6.2	
Auto-ignition temperature	°C	345	ASTM D2155
Saturated vapor concentration at 20 °C	g/m ³	9	calculated
Transport: ADR/RID class/item/label		3/31C/3	
IMO UN number/label		1157/3	
class/packing group		3.3/3	
EC user label: Symbol		Xi	
Risk phrases		10,37	
Safety phrases		24	

Test methods

- **ASTM methods** are published by the American Society for Testing and Materials, 1916 Race Street, Philadelphia, Pa 19103, USA, and are available in Europe from ASTM European Office, 27/29 Knowl Piece, Wilbury Way, Hitchin, Herts, SG4 0SX, UK.
- **DIN standards** are published by Beuth Verlag GmbH, 1 Berlin, Burggrafenstrasse 4-7, Germany.
- **IP methods** are published by the Institute of Petroleum, 61 New Cavendish Street, London, W 1 M 8AR, UK.

Specifications

Methyl isobutyl ketone can be supplied to meet the requirements of ASTM D1153, DIN 53247 and BS 1941, Methyl isobutyl ketone does not contain detectable quantities of polycyclic aromatics of polycyclic aromatics, heavy metals or chlorinated compounds. It can also be supplied to comply with the various requirements of the US FDA, pharmacopeias and military specifications. Please contact your local sales representatives if you need more details.

Applications

MIBK is a medium-evaporating solvent. It is an active solvent for many synthetic resins including cellulose, vinyl copolymers, acrylics, alkyds, polyesters and epoxies.

It is very useful in developing high-solids coating because of its combination of high solvent activity and low density.

- Excellent solvent activity
- High dilution ratio
- Inert – Food use with limitations
- Inert – Nonfood use
- Low density
- Low surface tension
- Low water miscibility
- Medium evaporation rate

Storage and handling

Advice on storage and handling may be obtained from Kumho P&B Chemicals. MIBK is available from Kumho P&B chemicals, inc. in bulk and drums; details available on request.

Provided proper storage and handling precautions are taken we would expect MIBK to be Technically stable for at least 12 months.

- 1) Precautions for safe handling
 - Avoid contact with incompatible materials
 - Handle only at well-ventilated place
 - Do not handle until all safety precautions have been read and understood
 - Operators should wear antistatic footwear and clothing
 - Do not inhale the gas prolongedly or repeatedly
 - Avoid contact with hear, sparks, flame or other ignition sources.
- 2) Conditions for safe storage
 - Save in a cool, dry and well-ventilated place
 - Follow applicable laws and regulations
 - Avoid direct sunlight
 - Refrain from open fire
 - Keep away from combustible materials or heat sources including static electricity
 - Carry in sealed containers.

Hazard information

MIBK is flammable. It is irritating to the respiratory system.

For further advice please refer to Material Safety Data Sheet.

The information contained in this publication is, to be best of our knowledge, true and accurate, but any recommendations or suggestions which may be made are without guarantee, since the conditions of use are beyond our control. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing patents covering any material or its use. Appropriate safe handling use, storage and disposal practices are the responsibility of the customer-user.