

Methoxypropyl Acetate

Medium-volatility solvent with a mild odour. Does not contain any hydroxyl groups, and has good solvent power for numerous resins and dyes. Its main applications are in the coatings and printing inks, where it can replace ethoxyethyl acetate in many cases.

Chemical nature

1-Methoxy-2-propyl acetate, Propylene glycol monomethyl ether-1,2-acetate

Molecular formula	$C_6H_{12}O_3$
Molar mass	132.16 g/mol
CAS-No.	108-65-6
EC-No.	203-603-9

Delivery specification

Property	Value	Unit	Test method
Mass fraction of			
- Methoxypropyl Acetate*	99.5 min.	%	DIN 55686
- Methoxypropanol	0.3 max.	%	DIN 55686
- Acetic Acid	0.03 max.	%	DIN EN ISO 2114
- Water	0.05 max.	%	DIN 51777, Part 1
Pt/Co color value (Hazen)	10 max.	-	DIN EN ISO 6271

* Methoxypropyl Acetate contains less than 0.3 % of the 2-methoxy-1-propyl acetate isomer.

Properties

Methoxypropyl Acetate is a clear, slightly hygroscopic liquid with a mild odour. It is freely miscible with most common organic solvents, but has only limited miscibility with water.

By virtue of its ether and ester groups, Methoxypropyl Acetate enters into reactions that are characteristic of ethers and esters and display their solvent power. For instance, it dissolves numerous natural and synthetic resins, waxes, fats and oils.

Since Methoxypropyl Acetate may react with the oxygen in the air to form peroxides, BASF supplies it inhibited with 2,6-di-*tert*-butyl-*para*-cresol (butylated hydroxytoluene – BHT).

Physical data

The following physical data have been compiled from the literature as well as from BASF measurements and calculations. They provide no guarantee of properties in the legal sense, however.

Property	Condition	Value	Test method
Boiling range	at 1013 hPa; 95 Vol.-%; 2 – 97 ml	145 – 147°C	DIN 53171
Density	20°C	0.965 – 0.970 g/cm ³	DIN 51757
Refractive index n_{20D}		1.401 – 1.403	DIN 51423
Solidification point		Below -75°C	
Evaporation rate	ether = 1	33	DIN 53170
Enthalpy of combustion (ΔH_c)	at 25°C	24 208 kJ/kg	
Enthalpy of formation (ΔH_f)	at 25°C	-5 036 kJ/kg	
Enthalpy of vaporization (ΔH_v)	at 25°C	380.6 kJ/kg	
Enthalpy of vaporization (ΔH_v)	at boiling point	317.3 kJ/kg	
Surface tension σ	at 20°C	28.2 mN/m	
Surface tension σ	at 40°C	25.2 mN/m	
Solubility	at room temperature		
- Methoxypropyl Acetate in water		Approx. 22% wt	

- Water in Methoxypropyl Acetate	Approx. 6% wt
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Hansen solubility parameters	$\delta_d = 15.6 \text{ (MPa)}^{1/2}$
	$\delta_p = 5.6 \text{ (MPa)}^{1/2}$
	$\delta_h = 9.8 \text{ (MPa)}^{1/2}$
	$\delta_t = 19.3 \text{ (MPa)}^{1/2}$

T[°C]	Vapor pressure P [hPa]	Density r [g/cm ³]	Viscosity η [mPa·s]	Specific heat Cp [kJ/(kg·K)]	Thermal conductivity λ [mW/(m·K)]
-40	0.009	1.0310	8.26		
-20	0.10	1.0099	3.33		
-10	0.28	0.9992	2.43		
0	0.70	0.9885	1.86		141.2
10	1.60	0.9777	1.48		140.7
20	3.37	0.9669	1.20		140.2
40	12.43	0.9451	0.85	2.080	139.2
50	22.06	0.9341	0.73	2.100	138.7
60	37.47	0.9230	0.64	2.110	138.1*
80	96.4	0.9006	0.50		137.0
100	218.7	0.8780	0.41		135.9*
120	447.5	0.8552	0.34		
140	841.8	0.8321	0.28		
146.4	1013				

* *extrapolated*

Applications

Selected applications of Methoxypropyl Acetate are presented below.

By virtue of its good solvent power for numerous resins and dyes, Methoxypropyl Acetate can be used as a solvent, flow improver and coalescent in coatings.

It is particularly suitable for coatings containing polyisocyanates. In this case, it is important that the peroxide fraction is as small as possible, as otherwise the colour of the final product may change. It is for this reason that we stabilize our solvent with 2,6-di-*t*-butyl-*p*-cresol (BHT).

Other applications for Methoxypropyl Acetate include

- flexographic, gravure and screen printing inks
- adhesives
- ball pen pastes
- dyes in furniture polishes or woodstains
- dye solutions and pastes for printing and colouring leather and textiles.

Yet another application for Methoxypropyl Acetate is as a binder for core sands in foundries.

Storage & Handling

Methoxypropyl Acetate should be stored under nitrogen. The storage temperature must not exceed 40°C and moisture are excluded. Under these conditions, a storage stability of 12 months can be expected.

Safety

When using this product, the information and advice given in our Safety Data Sheet should be observed. Due attention should also be given to the precautions necessary for handling chemicals.

Note

The data contained in this Technical Information is based on our current knowledge and experience as well as our investigations according to the today's state-of-the-art. In view of the many factors that may affect processing and application of the Product, these data do not relieve processors from carrying out their own investigations and tests; neither do these data imply any guarantee of certain properties, nor the suitability of the Product for specific purpose. No liability of BASF can be derived therefrom. It is the responsibility of the recipient of the Product to ensure that any proprietary rights and existing laws and legislation are observed.

December 2016