

Description

Dimethylacetamide, DMAc, is a colorless, high boiling, polar, hygroscopic liquid. DMAc can be mixed with water, alcohols, ethers, esters, ketones and chlorinated and aromatic hydrocarbons. It's not or poorly mixable with aliphatic hydrocarbons.

Physical and Chemical properties

Property	Value
Molecular formula	C ₄ H ₉ NO
CAS N°	127-19-5
EINECS N°	204-826-4
MITI (ENCS) listed	(2)-723
TOSCA listed	127-19-5
Molecular weight	87.12 g/mol
Boiling point	166°C
Freezing point	-20°C
Density	
20°C	942 kg/m ³
40°C	923 kg/m ³
Vapor pressure	
20°C	0.178 kPa
40°C	0.660 kPa
60°C	2.016 kPa
Dielectric constant, 10kHz, 25°C	37.8
Flash point, TOC	70°C

Property	Value
Evaporation Rate (DIN 53170; ether=1)	172
Surface tension	
20°C	33.8 mN/m (=dyn/cm)
40°C	30.9 mN/m
60°C	28.3 mN/m
Refractive index	1.4380
Viscosity	
20°C,	1.02 mPa.s (=cP)
40°C	0.78 mPa.s
60°C	0.62 mPa.s
Dipole moment C.m, 20°C	3.79 x 10 ⁻²⁹
Hansen solubility parameters at 25 °C:	$\delta_d = 16.8 \text{ (MPa)}^{1/2}$ $\delta_p = 11.5 \text{ (MPa)}^{1/2}$ $\delta_h = 10.2 \text{ (MPa)}^{1/2}$ $\delta_t = 22.7 \text{ (MPa)}^{1/2}$

The table below shows the thermal properties of DMAc.

Property	Value
Heat of combustion	25.45kJ/mol
Free energy of formation, 25°C,	288 kJ/mol
Heat of vaporization, 25°C	53.2 kJ/mol
Specific heat at 20°C	0.175kJ/mol.K
Thermal conductivity	
20°C	169.2 mW/(m.K)
40°C	161.2 mW/(m.K)
60°C	153.3 mW/(m.K)
Flammability limits in air	
Lower	2.0 vol%
Upper	11.5 vol%

Specifications

Property	Specification	Test method
Appearance	clear liquid, free from suspended material	
DMAc	≥ 99.90%	13E341
Colour	≤ 5 APHA	13E344
Alkalinity (as DMA)	≤ 0.001%	13E341
Acidity (as acetic acid)	≤ 0.01%	13E341
Water	≤ 0.010%	13E343
DMF	≤ 0.020%	13E341
Metal content Al, Ca, Cr, Cu, Fe, K, Mg, Mn, Na, Ni, Pb, Zn	≤ 50 ppb each	ICP

Packaging

- Polyethylene drums - 200 kg net.
- IBC container – 950kg

Labelling

See Material Safety Data Sheet.

Transport regulations

See Material Safety Data Sheet.

Toxicology

See Material Safety Data Sheet.

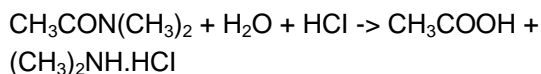
Ecotoxicology

See Material Safety Data Sheet.

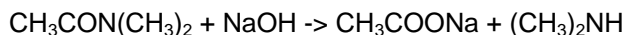
Principal chemical properties

The chemical reactions of DMAc are typical of those of disubstituted amides. Under suitable conditions, DMAc will react as follows:

Hydrolysis in the Presence of Strong Acids



Saponification in the Presence of Strong Bases



Alcoholysis in the Presence of Hydrogen Ions



Applications

Solvent in etch residue removers and photoresist strippers

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