

**MEOH (METHANOL)****FORMULA**CH₃ - OH**DESCRIPTION**

Methanol is a colorless alcohol, hygroscopic and completely miscible with water, but much lighter (specific gravity 0.8). It is a good solvent, but very toxic and extremely flammable. This simple single carbon alcohol is a volatile solvent and a light fuel.

PROPERTIES

Parameter	Unit	Quantity
Molecular weight	g/mol	32.04
Boiling point	°C at 1.0 atm	64.5
Vapor pressure	kg/cm ² at 20°C	0-128
Freezing point	°C	-97.5
Net heating value	million BTU/Ton	1883
Vapor density	air = 1 at 15°C	1.11
CAS number	67-56-1	
IUPAC name	Methanol	

SPECIFICATIONS

Parameter	Unit	Quantity / Description	Test Method
Purity	wt %	99.85 min	ASTM E-346
Water	wt %	0.1 max	ASTM E-203
Acetone & aldehydes	wt %	0.003 max	ASTM E-346
Ethanol	wt %	0.01 max	ASTM 3-346
Acidity (as Acetic Acid)	wt %	0.003 max	ASTM D-1613
Appearance & hydrocarbons	wt %	free of opalescence, suspended matter & sediment	visual check
Carbonizable Substances, color	-	not darker than Color Standard No. 30 of ASTM D-1209 Platinum - Cobalt Scale	ASTM E-346
Color	-	not darker than Color Standard No. 5 of ASTM D 1209 Platinum -	ASTM D-

		Cobalt Scale	1209
Odor	-	Characteristic, non-residual	ASTM D-1296
Distillation range	at 760 mm Hg.	not more than 1°C and include 64.4°C +/- 0.1°C	ASTM D-1078
Specific gravity	20°C/20°C	0.7928 max	ASTM D-4052
Non-volatile content	GM/100 ml	0.001 max	ASTM D-1353
Permanganate test	-	no discharge of color in 50 minutes	ASTM D-1363

Note:

ASTM : American Society for Testing and Materials

IMPCA, International Methanol Producers and Consumers

Parameter	Unit	Quantity	Test Method
Purity	wt %, dry basis	99.85 min.	IMPCA 001-02
Water	wt %	0.1 max.	ASTM E-1064
Acetone	mg/kg	30 max.	IMPCA 001-02
Ethanol	mg/kg	50 max.	IMPCA 001-02
Acidity (as Acetic Acid)	mg/kg	30 max.	ASTM D-1613
Appearance	-	Clear and free of suspended matter	IMPCA 003-98
Carbonisable Substances (Sulfuric Acid Wash Test)	PT-Co Scale	30 max.	ASTM E-346
Colour	PT-Co Scale	5 max.	ASTM D-1209
Distillation range	°C (at 760 mmHg)	Max. 1.0°C to include 64.6° ± 0.1°	ASTM D-1078
Specific gravity	20°C/20°C	0.791 - 0.793	ASTM D-4052
Non-volatile content	mg/1000 ml	8 max.	ASTM D-1353
Potassium permanganate time test	minutes at 15°C	60 min.	ASTM D-1363
Chloride (as Cl ⁻)	mg/kg	0.5 max.	IMPCA 002-98
Sulphur	mg/kg	0.5 max.	ASTM D-5453
Hydrocarbons (water miscibility)	-	pass test	ASTM D-1722
Total Iron	mg/kg	0.1 max.	ASTM E-394
TMA (1)		Optional	ASTM E-346
Aromatics (1)		Optional	IMPCA 004-08

Note

(1) In case some specific consumers or producers wish to have more specific information on TMA (which can be considered as an impurity generating bad smell) and/or Aromatics (in case the previous cargos have been Aromatics). IMPCA recommends to use these methods.

HAZARDS AND SAFETY

Methanol is extremely flammable, producing a bluish flame. Blindness and death may result from swallowing more than 10 grams, and it can be absorbed through the skin in toxic amounts.

Parameter	Unit	Quantity
Threshold limit value	ppm	200
Ignition temperature	°C	464
Flash point	°C	10
Flammable limits	vol % in air	6-36.5
UN or ID No.		1230

APPLICATIONS

Formaldehyde production is the largest market for methanol, followed by the fast growing market for MTBE. It is also used to produce acetic acid, fuels, solvents and methyle derivatives.

STORAGE AND HANDLING

Storage tanks for methanol are made of carbon steel. Outdoor storage is preferred, with the following safety precautions: keep away from ignition sources and excessive heat; wear goggles; rubber gloves; chemical cartridge respirator; aprons and boots.

Methanol is shipped in steel tanks by large chemical vessels, under regulations for highly flammable liquids. Each shipping container must bear the label "Flammable Liquid", and each tank car must bear a "Dangerous and Poisonous" placard.

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