Shell Chemicals

Data Sheet

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Product Name

Acetone

Product Code

S1212

Product Category

Ketones

CAS Registry Number 67-64-1

EINECS Number 200-662-2

Alternate Name 2-propanone, dimethyl ketone, DMK

Description

Acetone, the lowest molecular weight member of the ketone family of solvents, is a low boiling, fast evaporating, colourless, stable liquid. Because acetone possesses excellent solvent power for most natural and synthetic resins including acrylics, vinyl polymers, nitrocellulose, cellulose acetate, and other cellulose derivatives, it is a popular and effective low-boiling solvent for surface coating applications. Since most waxes, oils, fats, greases, and dye materials are soluble in acetone, it is ideally suited for extraction and other end uses.

Sales Specification

Property	Unit	Min	Max	Method	
Purity	%m/m	99.5		DIN 55687	
Methanol	mg/kg		1000	DIN 55687	
Water	%m/m		0.30	ASTM D1364	
Acidity as Acetic acid	%m/m		0.002	ASTM D1613	
Appearance	Clear & Free From Suspended Matter			ASTM D4176	
Color	Pt-Co		5	ASTM D1209	(4)
Density @20°C	gm/L	0.790	0.792	ASTM D4052	(4)
Refractive Index @20°C				ASTM D1218	(2)
Permanganate Fading Time @25°C	minutes	90		ASTM D1363	
Non Volatile Matter	g/100mL		0.001	ASTM D1353	
Distillation, IBP	°C	55.6		ASTM D1078	(4)
Distillation, DP	°C		56.6	ASTM D1078	(4)
Water Miscibility		Miscible		ASTM D1722	

(2) Typical / Representative value provided

(4) Agreed Specification limits - no results: Statistical average value reported

Typical Properties

Property	Unit	Method	Value
Purity	% m/m	DIN 55687	min 99.5
Water	% m/m	ASTM D1364	0.2
Density @20°C	kg/L	ASTM D4052	0.791
Cubic Expansion Coefficient @20°C	(10^-4)/°C	-	14
Refractive Index @20°C	-	ASTM D1218	1.359
Color	Pt-Co	ASTM D1209	< 5
Boiling Point	°C	-	56
Relative Evaporation Rate (nBuAc=1)	-	ASTM D3539	5.6
Relative Evaporation Rate (Ether=1)	-	DIN 53170	2.0
Antoine Constant A #	kPa, °C	-	6.25478
Antoine Constant B #	kPa, °C	-	1216.69
Antoine Constant C #	kPa, °C	-	230.275
Antoine Constants: Temperature range	°C	-	-50 to +70
Vapor Pressure @20°C	kPa	Calculated	25
Vapor Pressure @50°C	kPa	Calculated	82
Saturated Vapor Concentration @20°C	g/m³	Calculated	589
Flash Point	°C	IP 170	-18
Auto Ignition Temperature	°C	ASTM E659	540
Explosion Limit: Lower	%v/v	-	2.1
Explosion Limit: Upper	%v/v	-	13
Electrical Conductivity @20°C	µS/m	ASTM D4308	20
Dielectric Constant @20°C	-	-	21.4
Freezing Point	°C	-	-95
Surface Tension @20°C	mN/m	-	24
Viscosity @20°C	mPa.s	ASTM D445	0.32
Hildebrand Solubility Parameter	(cal/cm³)^½	-	10.0
Hydrogen Bonding Index	-	-	12.5
Fractional Polarity	-	-	0.695
Dilution Ratio: Toluene	-	ASTM D1720	4.2
Dilution Ratio: SBP 100/140	-	ASTM D1720	0.8
Heat of Vaporization @Tboil	kJ/kg	-	525
Heat of Combustion (Net) @25°C	kJ/kg	-	29000
Specific Heat @20°C	kJ/kg/°C	-	2.16
Thermal Conductivity @20°C	W/m/°C	-	0.16
Miscibility @20°C: Solvent in Water	% m/m	-	Complete
Miscibility @20°C: Water in Solvent	% m/m	-	Complete
Azeotrope with Water: Boiling Point	°C	-	Non-azeotropic
Azeotrope with Water: Solvent Content	% m/m	-	Non-azeotropic
Molecular Weight	g/mol	Calculated	58

(#) In the Antoine temperature range, the vapor pressure P (kPa) at temperature T (°C) can be calculated by means of the Antoine equation: log P = A - B/(T+C)

Test Methods	Copies of copyrighted test methods can be obtained from the issuing organisations: American Society for Testing and Materials (ASTM) : www.astm.org Energy Institute (IP) : www.energyinst.org.uk Deutsches Institut für Normung (DIN) : www.din.de For routine quality control analyses, local test methods may be applied that are different from those mentioned in this datasheet. Such methods have been validated and can be obtained through your local Shell Chemicals company.
Quality	Acetone can be supplied to meet the requirements of: ASTM D329, DIN 53247 and BS 509. Acetone does not contain detectable quantities of polycyclic aromatics, heavy metals or chlorinated compounds.
Storage and Handling	Provided proper storage and handling precautions are taken we would expect Acetone to be technically stable for at least 12 months. For detailed advice on Storage and Handling please refer to the Material Safety Data Sheet on www.shell.com/chemicals.
Hazard Information	For detailed Hazard Information please refer to the Material Safety Data Sheet on www.shell.com/chemicals.
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