Shell Chemicals

Technical Datasheet

Acetone

Product Code	U8903
Region	North America
Product Category	Ketones
CAS Registry Number	67-64-1
Synonym(s)	2-propanone, dimethyl ketone, DMK
Description	Acetone is a colorless, low boiling easy pouring liquid with characteristic odor, and is miscible in all proportions with water, alcohols, many hydrocarbons and other organic liquids. It has good solvent properties for vegetable and animal fats, cellulose ether, natural and synthetic resins and many other organic substances.

Typical Properties

Property	Unit	Method	Value
Purity, min.	%m/m	GC	99.5
Water	%m/m	ASTM D1364	0.2
Acidity (as Acetic Acid)	%m/m	ASTM D1613	0.001
Density at 20°C	kg/l	ASTM D4052	0.791
Specific Gravity at 20°C/20°C	-	ASTM D4052	0.792
Specific Gravity at 25°C/25°C	-	ASTM D4052	0.788
Coefficient of Cubic Expansion at 20°C	10^{-4}/°C	Calculated	14
Refractive Index at 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

Temperature Limits for Antoine Equation #	°C	-	-50 to +70
Vapor Pressure at 20°C	kPa	Calculated	25
Vapor Pressure at 50°C	kPa	Calculated	82
Saturated Vapor Concentration at 20°C	g/m^3	Calculated	589
Volatile Organic Compound (VOC)	g/l	EU / EPA	791 (EPA-Exempt)
Flash Point (Abel)	°C	IP 170	-18
Auto Ignition Temperature	°C	ASTM E659	540
Lower Explosion Limit	%v/v	-	2.1
Upper Explosion Limit	%v/v	-	13
Electrical Conductivity at 20°C	pS/m	ASTM D4308	$2*10^7$
Dielectric Constant at 20°C	-	-	21.4
Freezing Point	°C	-	-95
Surface Tension at 20°C	mN/m	-	24
Viscosity at 20°C	mPa.s	-	0.32
Hildebrand Solubility Parameter	$(cal/cm^3)^{1/2}$	-	10.0
Hydrogen Bonding Index	-	-	12.5
Fractional Polarity	-	-	0.695
Heat of Vaporization at T_{boil}	kJ/kg	-	525
Heat of Combustion (Net) at 25°C	kJ/kg	-	29000
Specific Heat at 20°C	kJ/kg/°C	-	2.16
Thermal Conductivity at 20°C	W/m/°C	-	0.16
Miscibility at 20°C: Solvent in water	%m/m	-	complete
Miscibility at 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	-	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

N.B: For routine quality control local test methods may be applied. Such methods have been validated against those mentioned in this datasheet.

Quality

Shell Acetone as produced and handled through loading into tank cars or tank trucks and delivery, if prepaid by Shell, complies with current Good Manufacturing Practices; the current National Formulary monograph; ASTM D329; and ACS 10th Edition Reagent Grade (General Use). Acetone does not contain detectable quantities of polycyclic aromatics, heavy metals or chlorinated compounds.

Hazard Information

For detailed Hazard Information please refer to the Safety Data Sheet on ww.shell.com/chemicals.

Storage 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 Safety Data Sheet on www.shell.com/chemicals.