Shell Chemicals

Data Sheet

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Product Name

Isopropyl Alcohol-USP

Product Code **S1144** **North America**

Product Category **Alcohols**

Synonym(s) IPA-USP

CAS Registry Number 67-63-0

EINECS Number 200-661-7

Description

Isopropyl alcohol-USP (IPA-USP) is a water-white mobile liquid with a mild (alcohol) odor. It is produced and handled through loading to comply with e.g. current Good Manufacturing Practices according to USP General Chapter <<1078>> and the US Pharmacopoeia / National Formulary Monographs in effect.

Sales Specification

Property	Unit	Min	Max	Method	
Appearance	Clear & Free From Suspended Matter			ASTM D4176	
Purity	%m/m	99.8		DIN 55685	
Water	%m/m		0.1	ASTM D1364	
Acidity as Acetic acid	%m/m		0.001	ASTM D1613	
Density @20°C	g/ml	0.785	0.786	ASTM D4052	(4)
Specific Gravity @25°C		0.783	0.787	ASTM D4052	(1)
Color	Pt-Co		5	ASTM D1209	(4)
Refractive Index @20°C		1.376	1.378	ASTM D1218	(4)
Non Volatile Matter	g/100ml		0.001	ASTM D1353	
Distillation, IBP	°C	81.8		ASTM D1078	(4)
Distillation, DP	°C		82.8	ASTM D1078	(4)
Water Miscibility		Miscible		ASTM D1722	
Identification test		Pass		USP197F	(1)

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

Product as produced and handled through loading complies with current Good Manufacturing Practices (GMPs) according to USP General Chapter <<1078>>; the current US Pharmacopoeia [USP] / National Formulary Monograph [NF]; ASTM D770; DIN 53245; European Pharmacopoeia; ACS 10th Edition Reagent Grade (General Use).

Typical Properties

Property	Unit	Method	Value
Purity	% m/m	GC	> 99.9
Water	% m/m	ASTM D1364	0.03
Density @20°C	kg/l	ASTM D4052	0.785
Cubic Expansion Coefficient @20°C	(10^-4)/°C	Calculated	11
Refractive Index @20°C	-	ASTM D1218	1.378
Color	Pt-Co	ASTM D1209	< 5
Boiling Point	°C	-	82
Relative Evaporation Rate (nBuAc=1)	-	ASTM D3539	1.5
Antoine Constant A #	kPa, °C	-	6.86618
Antoine Constant B #	kPa, °C	-	1360.13
Antoine Constant C #	kPa, °C	-	197.592
Antoine Constants: Temperature range	°C	-	-10 to +90
Vapor Pressure @20°C	kPa	Calculated	4.1
Vapor Pressure @50°C	kPa	Calculated	24
Saturated Vapor Concentration @20°C	g/m³	Calculated	102
Flash Point	°C	IP 170	12
Auto Ignition Temperature	°C	ASTM E659	425
Explosion Limit: Lower	%v/v	-	2
Explosion Limit: Upper	%v/v	-	12
Electrical Conductivity @20°C	µS/m	ASTM D4308	6
Dielectric Constant @20°C	-	-	18.6
Freezing Point	°C	-	-88
Surface Tension @20°C	mN/m	Du Nouy ring	23
Viscosity @20°C	mPa.s	ASTM D445	2.4
Hildebrand Solubility Parameter	(cal/cm³)^½	-	11.5
Hydrogen Bonding Index	-	-	-16.7
Fractional Polarity	-	-	0.178
Heat of Vaporization @Tboil	kJ/kg	-	664
Heat of Combustion (Net) @25°C	kJ/kg	-	31000
Specific Heat @20°C	kJ/kg/°C	-	2.6
Thermal Conductivity @20°C	W/m/°C	-	0.14
Miscibility @20°C: Solvent in Water	% m/m	-	Complete
Miscibility @20°C: Water in Solvent	% m/m	-	Complete
Azeotrope with Water: Boiling Point	°C	-	80.3
Azeotrope with Water: Solvent Content	% m/m	-	87.4
Molecular Weight	g/mol	-	60

(#) 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 Shell Method Series (SMS) methods are issued by Shell Golabl Solutions International B.V., Shell Research and Technology Centre, Amsterdam, The Netherlands. Copies of SMS can be obtained through your local Shell Chemicals company. 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	Isopropyl Alcohol-USP 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 Isopropyl Alcohol-USP 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/
Hazard Information	For detailed Hazard Information please refer to the Material Safety Data Sheet on www.shell.com/chemicals.
Contact	For further information, please visit our website at www.shell.com/chemicals, contact your local Shell representative, or call the 'Shell Chemicals' order center at 1 866 89 SHELL (1 866 897 4355).
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