



# Isopropyl Alcohol USP

## TECHNICAL DATASHEET

Alcohols

SICC Product Code: S1144

CAS Registry Number: 67-63-0

### Description

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

### Typical Physical Properties

Property	Unit	Value	Method
Purity, min.	%m/m	99.9	GC
Water	%m/m	0.03	ASTM D1364
Acidity (as Acetic Acid)	%m/m	0.001	ASTM D1613
Density at 20°C	kg/l	0.785	ASTM D4052
Specific Gravity at 20°C/20°C	-	0.786	ASTM D4052
Specific Gravity at 25°C/25°C	-	0.783	ASTM D4052
Coefficient of Cubic Expansion at 20°C	10 <sup>-4</sup> /°C	11	Calculated
Refractive Index at 20°C	-	1.377	ASTM D1218
Color	Pt-Co	< 5	ASTM D1209
Relative Evaporation rate (nBuAc=1)	-	1.5	ASTM D3539
Antoine Constant A <sup>#</sup>	kPa, °C	6.86618	-
Antoine Constant B <sup>#</sup>	kPa, °C	1360.13	-
Antoine Constant C <sup>#</sup>	kPa, °C	197.592	-

Notes:

#: In the Antoine temperature range, the vapor pressure P (kPa) at temperature T (°C) can be calculated by means of the Antoine equation:

$$\log P = A - B/(T+C).$$



## Typical Physical Properties

Property	Unit	Value	Method
Antoine Constants: Temperature range	°C	-10 to +90	-
Vapor Pressure @ 20°C	kPa	4.1	Calculated
Vapor Pressure @ 50°C	kPa	24	Calculated
Saturated Vapor Concentration @ 20°C	g/m <sup>3</sup>	102	Calculated
Boiling point	°C	82	-
Volatile Organic Compound (VOC)	g/l	785	EU/EPA
Flashpoint (Abel)	°C	12	IP 170
Auto Ignition Temperature	°C	425	ASTM E659
Lower Explosion Limit in Air	%v/v	2.0	-
Upper Explosion Limit in Air	%v/v	12	-
Electrical Conductivity at 20°C	pS/m	6*10 <sup>6</sup>	ASTM D4308
Dielectric Constant at 20°C	-	18.6	-
Freezing Point	°C	-88	-
Surface Tension @ 20°C	mN/m	23	-
Viscosity at 20°C	mPa.s	2.4	-
Hildebrand Solubility Parameter	(cal/cm <sup>3</sup> ) <sup>1/2</sup>	11.5	-
Hydrogen Bonding Index	-	-16.7	-
Fraction Polarity	-	0.178	-
Heat of Vaporization at T <sub>boil</sub>	kJ/kg	664	-
Heat of Combustion (Net) at 25°C	kJ/kg	31000	-
Specific Heat at 20°C	kJ/kg/°C	2.56	-
Thermal Conductivity at 20°C	W/m/°C	0.14	-
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	80.3	-
Azeotrope with Water: Solvent Content	%m/m	87.4	-
Molecular Weight	g/mol	60	-

## Test Methods

Copies of copyrighted test methods can be obtained from the issuing organisations:

- American Society for Testing and Materials (ASTM)
- International Organization for Standardization (ISO)
- Deutsches Institut für Normung (DIN)

Shell Method Series (SMS) methods are issued by Shell Global Solutions International B.V., Shell Technology Centre, Amsterdam, The Netherlands. Requests for copies of SMS can be made through your local Shell Chemicals company.

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

## Quality

IPA USP can be supplied to meet the requirements of ASTM D770, DIN 53245, FED MIL Spec TT-I-735A, European Pharmacopoeia, and ACS 10<sup>th</sup> Edition Reagent Grade (General Use).

IPA USP 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.

Access Safety Data Sheets here: [Safety Data Sheets](#)

## Storage and Handling

Provided proper storage and handling precautions are taken we would expect IPA USP to be technically stable for at least 12 months. For detailed advice on Storage and Handling please refer to the Safety Data Sheet

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