Shell Chemicals

Isopropyl Alcohol

TECHNICAL DATASHEET

Alcohols
SICC Product Code: S1111
CAS Registry Number: 67-63-0
EC Number: 200-661-7

Description

Isopropyl Alcohol (IPA) is a water-white liquid with a mild (alcohol) odour. It is miscible in all proportions with water and many organic liquids and has good solvent power for many organic substances (gums, shellac, alkaloids, and essential oils). IPA forms azeotropic mixtures with water and many organic liquids.

Typical Physical Properties

Property	Unit	Value	Method
Purity, min.	**%m/m**	**99.8**	**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^{-4}/°C**	**11**	**Calculated**
Refractive Index at 20°C	**-**	**1.377**	**ASTM D1218**
Colour	**Pt-Co**	**< 5**	**ASTM D1209**
Relative Evaporation rate (nBuAc=1)	**-**	**1.5**	**ASTM D3539**
Antoine Constant A#	**kPa, °C**	**6.86618**	**-**
Antoine Constant B#	**kPa, °C**	**1360.13**	**-**
Antoine Constant C#	**kPa, °C**	**197.592**	**-**

Notes:

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

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Typical Physical Properties

Property	Unit	Value	Method
Antoine Constants: Temperature range	°C	-10 to +90	-
Vapour Pressure @ 20°C	kPa	4.1	Calculated
Vapour Pressure @ 50°C	kPa	24	Calculated
Saturated Vapour Concentration @ 20°C	g/m^3	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	$6*10^6$	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	$(cal/cm^3)^{1/2}$	11.5	-
Hydrogen Bonding Index	-	-16.7	-
Fraction Polarity	-	0.178	-
Heat of Vaporization at T_{boil}	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	-

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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 can be supplied to meet the requirements of ASTM D770 and DIN 53245. IPA 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 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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