


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p>UKAS CALIBRATION</p> <p>0423</p> <p>Accredited to ISO/IEC 17025:2005</p>	<p>LGC Limited</p> <p>Issue No: 030 Issue date: 13 September 2017</p>	
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<p>Calibration performed at the above address only</p>		

DETAIL OF ACCREDITATION

Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks
CHEMICAL			
Forensic Alcohol Standards	20 mg/100 ml solution to 600 mg/100 ml solution	0.60 mg alcohol/100 ml solution	SOP FFF/B1-1025 using chemical oxidation with excess dichromate determined by titration SOP FFF/B1-1027 using Gas Chromatography
Purity of organic materials (molecular weight up to 1000)	Purity of 90% to 100% (wt/wt)	0.2 to 1.1 % wt/wt	SOP INS/B1 0416 using quantitative ¹ H Nuclear Magnetic resonance (NMR) using a Bruker 600MHz spectrometer
Purity of organic materials	Purity of 98.5 % to 100% (wt/wt)	0.40 % (wt/wt)	SOP INS/B1-0303 using Gas Chromatography
	Purity of 98.5 % to 100% (wt/wt)	0.40 % (wt/wt)	SOP INS/B1-0302 using High Performance Liquid Chromatography
	97 % to 100 % (wt/wt)	0.30 % (wt/wt)	SOP INS/B1-0405 using differential scanning calorimetry
Purity of organic standards	%m/m Water	0.12%	SOP INS/B1 -0415 using Thermogravimetric analyser – mass spectrometer (TGA-MS)
	% m/m Volatile Organics	0.28%	
	% m/m Inorganic Residue residue (heating to 800°C)	0.22% m/m	
Samples (liquid and solid) with water content in the range 0.02 mg to 11.0 mg (sample size to be selected appropriately).	0.02 mg H ₂ O to 0.10 mg H ₂ O 0.10 mg H ₂ O to 5.0 mg H ₂ O 5.0 mg H ₂ O to 11.0 mg H ₂ O	1.2 relative 0.80 relative 0.60 relative	SOP INS/B1-0411 using coulometric Karl-Fischer titration. Note that the technique is sample size dependent.



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DENSITY Apparent density in air at 20 °C of alcohol/water mixtures	788.16 kg/m ³ to 997.15 kg/m ³ Corresponding to 100 % to 0 % alcohol by volume	0.060 kg/m ³	SOP FFF/B1-1026, Density measurements by pycnometry Relating to density in air at 20 °C to % abv using HM Customs and Excise official laboratory alcohol table RDC 80/267/04 which is based upon the OIML value of ethanol density of 789.24 kg/m ³ published in support of OIML IR22, leading to an apparent density in air of pure ethanol at 20 °C of 788.16 kg/m ³
PHYSICAL Pure substance melting point	40 °C to 250 °C	0.17 °C to 0.27 °C	SOP INS/B1-0412 Determination of liquefaction temperature of pure substances

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