


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>0247</p> <p>Accredited to ISO/IEC 17025:2005</p>	<p>Poulten Selfe and Lee Ltd</p> <p>Issue No: 026 Issue date: 18 April 2018</p>	
	<p>PSL Calibration Laboratory Russell House Burnham Business Park Burnham-on-Crouch Essex CM0 8TE</p>	<p>Contact: Mr S J Gosling Tel: +44 (0)1621 787100 Fax: +44 (0)1621 787175 E-Mail: sales@psl-rheotek.com Website: www.psl-rheotek.com</p>
<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
TEMPERATURE			
Temperature indicators and recorders with sensors	-40 °C to 0 °C Ice Point (0 °C) 0 °C to 150 °C	0.010 °C 0.010 °C 0.010 °C	Digital thermometers for use according to ASTM D445, IP71 part1 and ISO3104 Different immersion characteristics may increase the uncertainty value
VISCOSITY			
Capillary viscometer calibration			
Viscosity constant 'C'	'C' (mm ² s ⁻¹)s ⁻¹		
Master viscometers - Ubbelohde	0.001 0.003 0.01 0.03 0.05 0.1 0.3 0.5 1 3 5 15 30 100	0.11 % 0.11 % 0.11 % 0.12 % 0.13 % 0.14 % 0.15 % 0.17 % 0.19 % 0.20 % 0.22 % 0.24 % 0.26 % 0.28 %	Calibrated to ASTM D2162-17
Reference viscometers	'C' (mm ² s ⁻¹)s ⁻¹		



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Measured Quantity Instrument or Gauge	Range	Calibration and Measurement Capability (CMC) Expressed as an Expanded Uncertainty ($k = 2$)	Remarks
Direct flow - PSL suspended level type	0.001 0.003 0.01 0.03 0.1 0.3 1 3 10 30 100	0.12 % 0.12 % 0.13 % 0.15 % 0.17 % 0.19 % 0.22 % 0.23 % 0.27 % 0.45 % 0.45 %	Calibrated to ASTM D446-12(2017) and ISO 3105:1994 in direct comparison with master viscometers calibrated to ASTM D2162-17
VISCOSITY (cont'd)			
Routine viscometers	'C' (mm ² s ⁻¹)s ⁻¹	Direct flow - Ubbelohde Suspended Level	Reverse flow
	0.001 0.003 0.01 0.03 0.1 0.3 1 3 10 30 100	0.13 % 0.13 % 0.14 % 0.17 % 0.20 % 0.22 % 0.24 % 0.29 % 0.29 % 0.46 % 0.46 %	0.19 % 0.20 % 0.20 % 0.23 % 0.25 % 0.27 % 0.31 % 0.35 % 0.35 % 0.50 % 0.50 %
Viscosity Reference Standards and Viscosity Measurement	mm ² s ⁻¹ 0.4 to 6 6 to 19 19 to 100 100 to 240 240 to 465 465 to 1130 1130 to 1740 1740 to 3980 3980 to 12500 12500 to 34000 34000 to 150000	Kinematic Dynamic 0.11 % 0.11 % 0.12 % 0.12 % 0.14 % 0.14 % 0.15 % 0.15 % 0.17 % 0.17 % 0.19 % 0.19 % 0.20 % 0.20 % 0.22 % 0.22 % 0.24 % 0.24 % 0.26 % 0.26 % 0.37 % 0.37 %	Calibrated to ASTM D446-12 (2017) and ISO 3105:1994 in direct comparison with reference viscometers or using viscosity standards calibrated to ASTM D2162-17. Temperature range 20 °C to 150 °C.
Viscosity Reference Standards and Viscosity Measurement	mm ² s ⁻¹ 0.4 to 6 6 to 19 19 to 100 100 to 240 240 to 465 465 to 1130 1130 to 1740 1740 to 150000	Kinematic 0.18 % 0.21 % 0.28 % 0.33 % 0.38 % 0.50 % 0.50 % 0.73 %	Viscosity reference standards calibrated to ASTM D2162-17 using reference viscometers. Temperature range -40 °C to 0 °C.



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Viscosity Reference Standards and Viscosity Measurement	mm ² s ⁻¹	Kinematic Dynamic	Viscosity reference standards calibrated to ASTM D2162-17 using reference viscometers. Temperature range 20 °C to 150 °C.
	0.4 to 6	0.18 % 0.18 %	
	6 to 19	0.18 % 0.18 %	
	19 to 100	0.24 % 0.24 %	
	100 to 240	0.27 % 0.27 %	
	240 to 465	0.38 % 0.38 %	
	465 to 1130	0.45 % 0.45 %	
	1130 to 1740	0.45 % 0.45 %	
	1740 to 3980	0.47 % 0.47 %	
	3980 to 12500	0.56 % 0.56 %	
	12500 to 34000	0.69 % 0.69 %	
34000 to 150000	0.69 % 0.69 %		
DENSITY			
Liquids	0.65 g/ml to 0.93 g/ml	0.040 %	Calibrated to IP 189/190-2005 Temperature range 20 °C to 150 °C.
END			