


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <b>Accredited to ISO/IEC 17025:2005</b>	<b>NPL Management Ltd</b> <b>Issue No: 067 Issue date: 12 April 2017</b>	
	<b>Hampton Road Teddington Middlesex TW11 0LW</b>	<b>Contact: Customer Helpline Tel: +44 (0)20 8943 7070 Fax: +44 (0)20 8614 0482 E-Mail: measurement_services@npl.co.uk Website: www.npl.co.uk</b>

**Testing performed by the Organisation at the locations specified below**

### Locations covered by the organisation and their relevant activities

#### Laboratory locations:

Location details	Activity	Location code
<b>Address</b> Hampton Road Teddington Middlesex TW11 0LW  <b>Local contact</b> Mr Tahir Maqba Customer Services Manager  Tel: +44 (0)20 8943 6796 Fax: +44 (0)20 8614 0482 E-Mail: tahir.maqba@npl.co.uk Website: www.npl.co.uk	<b>Support Functions:</b> Quality System Quality Audit Administration  <b>Testing:</b> Mechanical, metallurgical, physical and chemical testing  <b>Sampling and Testing:</b> Stack Emissions Testing	A

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
Customers' premises/sites	Sampling and analysis	B
Customer Sites requiring Stack Emissions Testing	Stack Emissions Testing	C



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
ENGINEERING COMPONENTS & TOOLS <i>Service Reference: LD10</i>	<p><u>Dimensional Tests</u></p> <p>Length measurement up to 550 x 500 x 450 mm, with following best measurement capability (uncertainty):</p> <p>1.5+L/260 µm, where L is in mm 0.80 µm (using substitution method) 0.40 µm (using reversal method)</p> <p><u>Physical Tests</u></p>	Documented in-house Method QPLM/B/216	A
THERMAL INSULATION PRODUCTS <i>Service Reference: MTA2</i>	<p>Thermal conductivity/thermal resistance over the temperature range 5 °C to 40 °C</p> <p>Conductivity range up to 0.1 W/m.K Uncertainty ± 2.5 %</p>	EN 12667:2001, EN 12939:2001 and ISO 8301:1991 using a 610 mm square Heat Flow Meter and following documented in-house method QPDQM/B/421	A
THERMAL INSULATION PRODUCTS <i>Service Reference: MTA2</i>	<p>Thermal conductivity/thermal resistance over the temperature range - 175 °C to + 50 °C</p> <p>Conductivity range up to 0.15 W/m.K Uncertainty ± 2.5 %</p>	EN 12667:2001 and ISO 8302:1991 using 305 mm diameter NPL Guarded Hot-Plate and following documented in-house method QPDQM/B/403	A
THERMAL INSULATION PRODUCTS <i>Service Reference: MTA1</i>	<p>Thermal conductivity/thermal resistance over the temperature range 140 °C to 800 °C</p> <p>Conductivity range up to 0.5 W/m.K Uncertainty ± 5 %</p>	EN 12667:2001 and ISO 8302:1991 using 305 mm diameter NPL Guarded Hot-Plate and following documented in-house method QPDQM/B/401	A
HOMOGENEOUS and INHOMOGENEOUS MATERIALS <i>Service Reference: MTA2</i>	<p>Thermal conductivity/thermal resistance over the temperature range - 100 °C to + 250 °C</p> <p>Conductivity 0.1 W/m.K to 10 W/m.K Uncertainty ± 7.5 %</p>	ASTM E1530:06 using 50 mm diameter Guarded Heat Flow Meter and following documented in-house method QPDQM/B/422	A





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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<p>GAS MEASURING EQUIPMENT (cont'd)</p> <p>Continuous Emission Monitoring Systems (CEMS) and Process Gas Analysers <i>Service Reference: QE21</i> (cont'd)</p>	<p><b>Test Gases</b> (cont'd)</p> <p><b>Oxygen</b></p> <p>25 % mol/mol [<math>\pm 0.5</math> %]</p> <p><b>Water Vapour</b></p> <p>45 % mol/mol [<math>\pm 3</math> %]</p> <p><b>Zero Gas</b></p> <p>Zero and diluent gases contain &lt; 0.1 % of measuring range</p> <p><b>Compliance Tests</b></p> <p><b>Linearity</b></p> <p><math>\pm 0.5</math> % of test range</p> <p><b>Repeatability</b></p> <p><math>\pm 0.5</math> % of concentration</p> <p><b>Response Time</b></p> <p>Step change of concentration to 90% of final value within 10 s [<math>\pm 10</math> s]</p> <p><b>Test Gas Temperature Range</b></p> <p>20 °C to 200 °C [<math>\pm 1</math> °C]</p> <p><b>Test Gas Pressure Variation</b></p> <p>up to + 3 kPa [<math>\pm 0.3</math> kPa]</p> <p><b>Ambient Temperature Range</b></p> <p>- 25 °C to + 70 °C [<math>\pm 1</math> °C]</p> <p><b>Ambient Humidity Range</b></p> <p>5 %rh to 95 %rh [<math>\pm 3</math> %rh]</p>		A



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GAS MEASURING EQUIPMENT (cont'd)			A
Continuous Emission Monitoring Systems (CEMS) <i>Service Reference: QE84</i>	<b>Field Tests</b>  Lack of fit (linearity) Response time Maintenance interval Long term stability (Zero shift and span change) Reproducibility Availability Contamination check of in-situ Systems Calibration function tests  Tests for gaseous monitoring CEMS for CO, CO <sub>2</sub> , SO <sub>2</sub> , O <sub>2</sub> , H <sub>2</sub> O, N <sub>2</sub> O, NO and NO <sub>2</sub>	Environment Agency (MCERTS) Performance standards and test procedures for continuous emission monitoring systems. For gaseous, particulate and flow-rate monitoring systems.  EN 15267-3:2007  Documented in-house methods QPDQM/B/538, QPAS/B/542 and QPAS/B/555 incorporating the requirements of the above documents	C
Stack Emissions - Continuous Emissions Monitoring Systems (CEMS) <i>Service Reference: QE84</i>	QAL 2, and the Annual Surveillance Test (AST) for CEMS	Documented in house method QPAS/B/542 to meet the requirements of BS EN 14181:2014, Environment Agency MID 14181 (TGN M20 Annex A) and other requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007/ BS EN 15259:2007	A, C



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<b>GAS MEASURING EQUIPMENT (cont'd)</b>  Continuous ambient monitors (CAMS) <i>Service Reference: QE21</i>	CAMS that measure benzene and/or other volatile organic compounds  <b>Laboratory tests</b>  Repeatability Short-term drift Sample gas pressure Lack of fit Carry over (memory effect) Supply voltage Ambient temperature Cross interference with ozone Cross interference with water (relative humidity test) Cross interference with organic compounds	Environment Agency (MCERTS) Performance standards for continuous ambient air monitoring systems  EN 14662-3:2005  Documented in-house method QPAS/B/528A incorporating the requirements of the above documents	A
	<b>Field tests</b>  Operational Requirements Long-term drift Maintenance interval Availability Reproducibility under field conditions Uncertainty calculation	Environment Agency (MCERTS) Performance standards for continuous ambient air monitoring systems  EN 14662-3:2005  Documented in-house method QPAS/B/528B incorporating the requirements of the above documents	B



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<p>WORKPLACE AND AMBIENT ATMOSPHERIC POLLUTANTS, AND OTHER GAS SAMPLES</p> <p>Volatile organic Compounds in air using Sorbent tubes <i>Service Reference: QE83</i></p>	<p><u>Chemical Tests</u></p> <p>Volatile Compounds:</p> <p>iso-butane, n-butane, 1,3 butadiene, iso-pentane, n-pentane, n-hexane, benzene, toluene, m/p-xylene, ethylbenzene, o-xylene.</p>	<p>Documented in house method QPAS/B/566 using sorbent tubes followed by thermal desorption and GCMS Based on BS-EN ISO 16017-1&amp;2</p>	A
<p>On site Sampling of Pumped and diffusive sorbent tubes <i>Service Reference: QE83</i></p>	<p><u>Onsite Sampling</u></p> <p>Nitrogen dioxide Nitrogen monoxide Sulphur dioxide Volatile organic compounds</p>	<p>Documented in-house methods QPAS/B/566</p>	B
<p>Glass adsorption tubes containing gold-coated silica <i>Service Reference: QE85-8020</i></p>	<p><u>Chemical Tests</u></p> <p>Total mercury</p>	<p>Thermal desorption-atomic fluorescence spectroscopy. Documented in-house method QPAS/B/544 in accordance with BS EN 15852:2010</p>	A
<p>Weight of suspended particulate matter <i>Service Reference: QE85-8050</i></p>	<p>25 ug to 7 mg equivalent to 1 µg/m<sup>3</sup> for a 1 m<sup>3</sup>/hour sampler to 120 µg/m<sup>3</sup> for a 2.3 m<sup>3</sup>/hour sampler</p>	<p>Documented in-house method based on BS EN 14907:2005</p>	A



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<p>WORKPLACE AND AMBIENT ATMOSPHERIC POLLUTANTS, AND OTHER GAS SAMPLES (cont'd)</p> <p>Cellulose filters Acid digests (nitric acid and hydrogen peroxide) <i>Service Reference: QE85-8010</i></p> <p>Particulate matter on filters or in aqueous solution <i>Service Reference: QE85-8030</i></p> <p>Filters, polyurethane foam (PUF) cartridges and solutions in organic solvents <i>Service Reference: QE85-8060</i></p>	<p><u>Chemical Tests (cont'd)</u></p> <p>Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Nickel Selenium Vanadium Zinc</p> <p>Fluoride Chloride Nitrate Sulphate</p> <p>Acenaphthylene Phenanthrene Anthracene Fluoranthene Pyrene Benzo[c]phenanthrene Benzo[a]anthracene Cyclopenta[c,d]pyrene Chrysene Benzo[b]fluoranthene Benzo[j]fluoranthene Benzo[k]fluoranthene Benzo[e]pyrene Benzo[a]pyrene Perylene Indeno[1,2,3-cd]pyrene Dibenz[a,c]anthracene Dibenz[a,h]anthracene Benzo[g,h,i]perylene Anthanthrene Dibenzo[a,l]pyrene Dibenzo[a,e]pyrene Coronene</p>	<p>Microwave digestion (for cellulose filters) and inductively coupled plasma - mass spectrometry (ICP-MS)</p> <p>Documented in-house method QPAS/B/533 in conformance with EN 14902:2004</p> <p>Documented in-house method QPAS_B_552 using ion chromatography</p> <p>Soxhlet extraction and analysis by gas chromatography – mass spectrometry (GC-MS)</p> <p>Documented in-house method QPAS/B/560 in conformance with EN 15549:2008</p>	<p>A</p> <p>A</p> <p>A</p>





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<p>WORKPLACE AND AMBIENT ATMOSPHERIC POLLUTANTS, AND OTHER GAS SAMPLES (cont'd)</p> <p>Quartz filters Air particulate samples <i>Service Reference: QE85-8040</i></p>	<p><u>Chemical Tests</u> (cont'd)</p> <p>Total carbon (elemental carbon plus organic carbon) Total carbon up to 100 µg/cm<sup>3</sup></p>	<p>Thermal-optical method - volatilisation and oxidation of carbon-containing PM components, quantification of the carbonaceous gases released</p> <p>Documented in-house method QPAS/B/561, based on CEN/TR 16243</p>	A
<p>Impurities in hydrogen gas samples <i>Service Reference QE13</i></p>	<p>Amount fraction of:</p> <p>Water Total hydrocarbons Oxygen Helium Nitrogen Argon Carbon dioxide Carbon monoxide Total sulphur compounds</p>	<p>Documented in-house methods QPDQM/B/500 and DN34</p>	A
<p>Filter Papers and Rinse Solutions <i>Service Reference: QE84</i></p>	<p><u>Physical Tests</u></p> <p>Weighing of Particulate Matter</p>	<p>BS EN 13284-1:2002 BS ISO 9096:2003 (QPAS/B/536)</p>	A
<p>Testing of Stack Emissions to Atmosphere <i>Service Reference: QE84</i></p>	<p>Weighing of Particulate Matter &lt;10 micron (PM10 and PM2.5)</p> <p><u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u></p>	<p>BS EN ISO 23210:2009 (QPAS/B/563)</p> <p>National, International and other recognised standards using documented in-house methods to meet the requirements of DD CEN/TS 15675:2007/ BS EN 15259:2007</p>	A
	<p>Ammonia</p>	<p>US EPA Method 26 (QPAS/B/540)</p>	C
	<p>Total Particulate Matter (20 mg/m<sup>3</sup> to 1000 mg/m<sup>3</sup>)</p>	<p>BS ISO 9096:2003 (QPAS/B/536)</p>	C



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
Testing of Stack Emissions to Atmosphere <i>Service Reference: QE84</i> (cont'd)	<u>Sampling and On-Line Analysis</u>		
	<u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u>	National, European, International and Environment Agency specified standards including MIDs and documented in-house methods to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007/ BS EN 15259:2007	
	Total Particulate Matter	BS EN 13284-1:2002 (QPAS/B/536)	C
	Particulate Matter <10 micron (PM10 and PM2.5)	BS EN ISO 23210:2009 (QPAS/B/563)	
	Hydrogen chloride	BS EN 1911:2010 (QPAS/B/540)	C
	Hydrogen fluoride	BS ISO 15713:2006 (QPAS/B/540)	C
	Sulphur dioxide	BS EN 14791:2005 (QPAS/B/540)	C
	Ammonia	BS EN 14791:2005 (QPAS/B/540)	C
	Metals	BS EN 14385:2004 (QPAS/B/537)	C
	Mercury	BS EN 13211:2001 (QPAS/B/537)	C
	Dioxins and Furans	BS EN 1948-1:2006 (QPAS/B/539)	C
Dioxin-like Polychlorinated Biphenyls (PCBs)	BS EN 1948-4 2010 (QPAS/B/539)	C	



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Testing of Stack Emissions to Atmosphere <i>Service Reference:QE84</i> (cont'd)	<u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u> (cont'd)	National, European, International and Environment Agency specified standards including MIDs and documented in-house methods to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007/ BS EN 15259:2007	
	Polycyclic Aromatic Hydrocarbons (PAHs)	BS ISO 11338-1:2003 (QPAS/B/539)	C
	Speciated VOCs Mercaptans Amines and Amides Phenols Cresols Carboxylic Acids Aldehydes	Direct sampling of dry stacks and dynamic dilution sampling of hot wet stacks. Extractive sampling onto carbon or other sorbent tubes and analysis by solvent desorption or thermal desorption. PD CEN/TS 13649:2014 (QPAS/B/556)	C
	<u>Sampling and On-Line Analysis</u>		
	Pressure, Temperature and Velocity	BS EN ISO 16911-1 2013 MID BS EN ISO 16911-1 2013(QPAS/B/567)	C
	Water vapour (gravimetric analysis)	BS EN 14790:2005 (QPAS/B/536)	C
	Carbon dioxide*	ISO 12039:2001 (QPAS/B/538 - NDIR analyser)	C
	Carbon monoxide*	BS EN 15058:2006 (QPAS/B/538 - NDIR analyser)	C
	Oxides of nitrogen*	BS EN 14792:2005 (QPAS/B/538 - Chemiluminescence analyser)	C
Sulphur dioxide*	EA TGN M21 (QPAS/B/538 - NDIR analyser)	C	
* The scale range of the analyser used for this test must be that detailed on its current MCERTS certificate or a range validated by the organisation to meet MCERTS requirements.			



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Testing of Stack Emissions to Atmosphere <i>Service Reference: QE84</i> (cont'd)	<u>Sampling and On-Line Analysis</u> (cont'd)	National, European, International and Environment Agency specified standards including MIDs and documented in-house work instructions to meet the requirements of the Environment Agency (MCERTS) Performance Standard and DD CEN/TS 15675:2007/ BS EN 15259:2007	
	Nitrous oxide (N <sub>2</sub> O)*	BS EN ISO 21258:2010 (QPAS/B/564 - NDIR analyser)	C
	Oxygen*	BS EN 14789:2005 (QPAS/B/538 - Validated paramagnetic analyser) (QPAS/B/538 - Validated zirconium cell analyser) (QPAS/B/538 - Validated electrochemical cell analyser)	C
	Total Gaseous Organic Carbon* (TOC / VOC) (0 to 1000 mg/m <sup>3</sup> )	BS EN 12619:2013 (NPL method ref QPAS/B/538 - FID analyser)	C
	<u>Sampling and On-Line Analysis</u> Sampling and on-line analysis of gas phase chemicals from stacks, ducts and flues, including:  carbon monoxide* nitrogen monoxide* sulphur dioxide* hydrogen chloride* water vapour*  A controlled list of chemical species covered by this method is maintained by the laboratory.	Environmental Agency TGN M22: Measuring stack gas emissions using FTIR Instruments.  Flexible scope to allow Measurement of additional gaseous components using documented procedure QPAS/B/541 and QPENVB/110 and traceable reference standards.	A, C

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<p>ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES <i>Service Reference: QE85-8015</i></p> <p>Impinger Solutions (sulphuric acid/potassium permanganate, nitric acid/potassium dichromate <i>Service Reference: QE85-8015</i></p> <p>Aqueous Solutions including acid digest solutions and saline waters <i>Service Reference: QE85-8015</i></p> <p>LAMPS &amp; LUMINAIRES</p> <p>LED lamps and luminaires and other solid state lighting products, maximum linear dimension 1.5 m <i>Service Reference: OT03</i></p>	<p><u>Chemical Tests</u></p> <p>Trace Elements (heavy metals) specifically: Mercury</p> <p>Mercury</p> <p>Luminous flux Luminous efficacy Luminous intensity distribution Spectral total flux, Spectral radiant intensity distribution Chromaticity coordinates Colour Correlated colour temperature Colour rendering indices</p>	<p>Documented In-House Methods based on the following national, international and other recognised standards.</p> <p>Documented in-house method, QPAS/B/565 and CVAFS, in accordance with EN 13211:2001, EN 1483:2007 and Environment Agency implementation document MID 14385</p> <p>Documented in house method QPAS/B/565 and CVAFS</p> <p>Documented in-house method in accordance with IES-LM-79-08 BS EN 13032-1:2004 IEC/PAS 62612 EN 60969:1993 EN 50285:1999 EuP regulation 244/2009 CIE13.3:1995 CIE 70:1987 CIE 84:1989 CIE 121:1996</p>	<p>A</p>



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<p>LAMPS &amp; LUMINAIRES (cont'd)</p> <p>Lamps and luminaires including incandescent filament lamps, tungsten halogen lamps, fluorescent lamps (1.5 m maximum linear dimension), compact fluorescent lamps, high pressure mercury vapour lamps, metal halide lamps, sodium lamps; high intensity discharge lamps</p>	<p>Luminous flux Luminous efficacy Luminous intensity distribution Spectral total flux Spectral radiant intensity distribution Chromaticity coordinates Colour Correlated colour temperature Colour rendering indices</p>	<p>Documented in-house method in accordance with BS EN 13032-1:2004 BS EN 60064:1995+A5:2009 BS EN 60081:1998+A4:2010 BS EN 60188:2001 IEC 60188:2001 BS EN 60192:2001 IEC 60192:2001 EN 60357:2003 BS EN 60901:1996+A4:2008 BS EN 61167:2011 EN 60969:1993 EN 50285:1999 EuP regulation 244/2009 IEC 61341 IES-LM-9-09 IES-LM-10-96 IES-LM-35-02 IES-LM-41-98 IES-LM-45-09 IES-LM-46-04 IES-LM-66-11 CIE13.3:1995, CIE 70:1987, CIE 84:1989 and CIE 121:1996</p>	<p>A</p>
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**Accreditation for the purpose of Notified Body Activity taking into account EA2/17 and relevant requirements of ISO 17025:2005**

Directive / Regulation	Conformity Assessment procedure/ Module/article	Category of products or individual products	Essential requirements: Product specification / Properties/Standards
The Construction Products Regulation (EU) No 305/2011	Testing Laboratory Attestation System 3	Thermal insulating products (1/2) : Thermal insulating products (factory-made products and products intended to be formed in-situ) (any)	EN 13162:2012+A1: 2015 EN 13163:2012+A1: 2015 EN 13164:2012+A1: 2015 EN 13165:2012+A2: 2016 EN 13166:2012+A2: 2016 EN 13167:2012+A1: 2015 EN 13168:2012+A1: 2015 EN 13169:2012+A1: 2015 EN 13170:2012+A1: 2015 EN 13171:2012+A1: 2015 EN 14303:2015 EN 14304:2015 EN 14305:2015 EN 14306:2015 EN 14307:2015 EN 14308:2015 EN 14309:2015 EN 14313:2015 EN 14314:2015 EN 15501:2015
The Construction Products Regulation (EU) No 305/2011	Testing Laboratory Attestation System 3	Thermal insulating products (2/2) : Thermal insulating products (factory-made products and products intended to be formed in-situ) (for uses subject to regulations on reaction to fire)	EN 13162:2012+A1: 2015 EN 13163:2012+A1: 2015 EN 13164:2012+A1: 2015 EN 13165:2012+A2: 2016 EN 13166:2012+A2: 2016 EN 13167:2012+A1: 2015 EN 13168:2012+A1: 2015 EN 13169:2012+A1: 2015 EN 13170:2012+A1: 2015 EN 13171:2012+A1: 2015 EN 14303:2015 EN 14304:2015 EN 14305:2015 EN 14306:2015 EN 14307:2015 EN 14308:2015 EN 14309:2015 EN 14313:2015 EN 14314:2015 EN 15501:2015
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