

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

21 - 47 High Street, Feltham, Middlesex, TW13 4UN, UK

 <p>Accredited to ISO/IEC 17025:2005</p>	Glass Technology Services Ltd	
	Issue No: 030 Issue date: 14 October 2011	
	9 Churchill Way Chapelton Sheffield S35 2PY	Contact: W A Hartley Tel: +44 (0)114 290 1801 Fax: +44 (0)114 290 1851 E-Mail: a.hartley@glass-ts.com Website: www.glass-ts.com
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
<p>Address Glass Technology Services Ltd 9 Churchill Way Chapelton Sheffield S35 2PY</p> <p>Local contact W A Hartley Tel: +44 (0)114 290 1801 Fax: +44 (0)114 290 1851 Email: a.hartley@glass-ts.com Website: www.glass-ts.com</p>	<p>Glass and Glass Products Analysis</p> <p>Environmental Sampling/ Testing</p>	A

Site activities performed away from the locations listed above:

Location details	Activity	Location code
<p>Customers sites requiring Stack Emissions Testing</p>	<p>Stack Emissions Testing</p>	B



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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
GLASS and GLASS PRODUCTS	<u>Chemical Tests</u>	Documented In-House methods:	
	Lead Cadmium	QP11 using atomic absorption spectrometry and atomic emission spectroscopy	A
	Lead and Cadmium Leaching	QP16 based on ISO 7086 Parts 1 and 2 (2000) BS 6748 (1986) (R05) BS EN 1388-2 (1996) ASTM 927: 80 (1996) AOAC - 973.32 (1990)	A
	Elemental/oxide analysis	QP08 using X-ray fluorescence techniques	A
	Loss on drying and Loss on Ignition	QP10	A
	Hydrolytic resistance	QP15 based on USP32 - Section 660 (2009) Ph.Eur. Ed 6.8 Section 3.2.1 (2010) BP-Vol IV - App XIX B (2010)	A
GLASS AND SAND	Identification and comparative analysis	QP07 using SEM Techniques	A
GLASS AND SAND	Iron Chromium	QP14 using UV-Visible light spectrometry	A
GLASS MAKING MINERALS (eg sand, limestone, dolomite, cullet, feldspar, blast furnace slag, nepheline syenite, synthetic diopside, alumina and alumino-silicate refractories)	Na ₂ O, MgO, Al ₂ O ₃ , SiO ₂ , P ₂ O ₅ , K ₂ O, CaO, TiO ₂ , MnO, Cr ₂ O ₃ , SrO, Fe ₂ O ₃ , BaO	QP09 using X-ray fluorescence techniques	A
GLASS PRODUCTS	<u>Dimensional Tests</u>	Documented In-house methods:	
	Length (to ± 0.001 mm) Diameter (to ± 0.001 mm) (Range 0 to 100 mm) Angle (to ± 0.010°) (Range 0 to 90°)	QP32 using optical profile methods	A



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GLASS PRODUCTS (cont'd)	<u>Dimensional Tests</u> (cont'd)			
	Length (to ± 0.01 mm) Diameter (to ± 0.01 mm) (Range 1 to 150 mm)	QP02, QP03, QP29	A	
	Digital depth gauge	QP47 based on BS 969 and 887 (2008)	A	
	Volumetric capacity	QP48 based on BS 1797 (1987) (R05) TEC6 (1994)	A	
	Verticality	QP49 based on BS EN 29008 (1994)	A	
	Hall effect thickness gauge	QP51 based on Instruction Manual, Sections 910 - 198E and 213A	A	
	GLASS AND GLASS PRODUCTS	<u>Physical Tests</u>		
		Thermal shock	QP33 based on BS EN 1183 (1997) ASTM C149-86 (2005) BS EN ISO 7459 (2004)	A
		Strain characteristics	QP17, based on ASTM C148-00 using a fluorescent intensity >1300 lux	A
		Glass failure analysis	QP18	A
Fragment analysis of glass		QP21	A	
Compression Testing		QP39	A	
<u>Mechanical Tests</u>				
Impact testing of glass		QP19	A	
Pressure testing of glass		QP20 based on ASTM C147-86	A	
Torque testing of caps for glass containers		QP31	A	



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GLASS AND GLASS PRODUCTS (cont'd)	<u>Mechanical Tests</u> (cont'd)		
Sodium Carbonate	Total alkalinity	QP61 based on BS 6070-1:1981(1997), ISO 740:1976	A
GLASS/NON POROUS MATERIAL	Density	QP66 based on ASTM C693 - 93	A
GLASS AND GLASS PRODUCTS	<u>Chemical Tests</u>	Documented In-house methods:	
Road marking materials: glass beads and premix glass beads	Resistance to the effects of: water, hydrochloric acid, calcium chloride, sodium sulphide	QP30 based on BS EN 1423:1998:Annex B	A
	Determination of the presence of moisture-proof coating	QP30 based on BS EN 1423:1998:Annex E	A
	<u>Physical Tests</u>	QP30 based on BS EN ISO 15528:2000, ISO787/9 (1981)	
	Granulometry	BS EN 1423:1998:Section 4.1 BS EN 1424:1998:Section 4.1	A
	Refractive Index	BS EN 1423:1998:Annex A	A
	Bead imperfections	BS EN 1423:1998:Annex C	A
	Bead quality	BS EN 1423:1998:Annex D	A
STACK EMISSIONS	<u>Physical Testing</u>		
Filter papers and rinse solutions	Weighing of Particulate Matter	BS EN 13284-1:2002 BS ISO 9096:2003 (QP40)	A



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Testing of Stack emissions to Atmosphere	<u>Sampling with subsequent analysis by an ISO/IEC 17025 Accredited Laboratory</u>	National, European, International and Environment Agency specified standards including MID's 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	
	Total Particulate Matter (0 - 50 mg/m ³)	BS EN 13284-1:2002 (QP40)	B
	Total Particulate Matter (50 -1000 mg/m ³)	BS ISO 9096:2003 (QP40)	B
	Hydrogen Chloride	BS EN 1911-1:1998 (QP43)	B
	Hydrogen Fluoride	BS ISO 15713:2006 (QP44)	B
	Sulphur dioxide	BS EN 14791:2005 (QP53)	B
	Metals (excluding mercury)	BS EN 14385:2004 (QP50)	B
	Ammonia	BS EN 14791:2005 (QP60)	B
	<u>Sampling and On-Line analysis</u>		
	Pressure Temperature Velocity	BS EN 13284-1:2002 (QP41)	B
Water Vapour	BS EN 14790:2005 (QP52)	B	
Oxygen*	BS EN 14789:2005 (QP55 - Validated Electrochemical cell or Paramagnetic analyser)	B	



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Testing of Stack emissions to Atmosphere (cont'd)	<u>Sampling and On-Line Analysis</u> (cont'd)	National, European, International and Environment Agency specified standards including MID's 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 (cont'd)	
	Carbon Monoxide*	BS EN 15058:2006 (QP62 - NDIR Analyser)	B
	Sulphur Dioxide*	EA TGN M21 (QP59 - NDIR Analyser)	B
	Total Gaseous Organic Carbon* (TOC/VOC) (0-20mg/m ³)	BS EN 12619:1999 (QP63 - FID analyser)	B
	Total Gaseous Organic Carbon* (TOC/VOC) (20-500mg/m ³)	BS EN 13526:2002 (QP63 - FID analyser)	B
Oxides of Nitrogen (Nitrogen Oxide only)*	BS EN 14792:2005 (QP54 - Validated NDIR Analyser)	B	
END			

* - 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.