Schedule of Accreditation

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2594

Accredited to ISO/IEC 17025:2017

R-TECH Services Ltd trading as R-TECH Materials

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Testing performed at the above address only

R-Tech Materials is accredited for a limited flexible scope that enables the laboratory to conduct accredited testing through the modification of existing test methods, inclusion of technically equivalent standard methods and inclusion of revised standard methods to activities detailed below, in accordance with their documented in-house procedure RT 08.

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS	Chemical Tests	
Plain carbon and low alloy steels	Elemental Analysis C, Si, Mn, P, S, Cr, Mo, Ni, Al, B, Co, Cu, Nb, Sn, Ti, V, N	Documented In-House method APM03 using OES (Spectromax – X)
Plain carbon, low alloy and stainless steels	Carbon and Sulphur	Documented In-House method APM 04 using Leco CS 744 analyser
	Nitrogen	Documented In-House method APM 05 using Leco N 736 analyser
Plain carbon, low alloy and stainless steels	Mechanical Tests	
	Tensile (Forces up to 1500 kN)	BS EN ISO 6892-1 (Method B) excluding annex G ASTM A370
	Vickers hardness (HV0.5, HV1, HV10 & HV30)	BS EN ISO 6507-1

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS (cont'd)		
WELDMENTS	Tests designated in specified welding codes, as detailed below	BS EN ISO 15614-1 BS EN ISO 9015-1 BS EN ISO 4136 BS EN ISO 17637
	Hardness, Tensile and Visual Examination	
Carbon steel, stainless steel & stainless steel clad reinforcing bars, wire rod, wires, welded fabrics for the reinforcement of concrete, and steel bars, and wire for the pre-stressing of concrete	<u>Mechanical Tests</u>	
	Bend	BS 6744 BS EN 10080 ASTM A615/A615M ASTM A706/A706M
	Re-bend	BS 4482:1985 (Withdrawn) BS 4482 BS 4449:1997 (Superseded) BS 4449 + A3 BS EN ISO 15630-1 BS EN ISO 15630-2 BS EN ISO 15630-3
	Reverse bend	ISO 7801
	Tensile (Forces up to 1500 kN)	BS 4449:1997 (Superseded) BS 4449 +A3 BS 4482:1985 (Withdrawn) BS 4482 BS 4483:1998 (Withdrawn) BS 4483 BS 4486 BS 6744 BS EN ISO 6892-1 (Method B) excluding Annex G BS EN ISO 15630-1 BS EN ISO 15630-2 BS EN ISO 15630-3 ASTM A615/A615M ASTM A706/A706M

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS (cont'd)	Mechanical Tests (cont'd)	
Carbon steel, stainless steel & stainless steel clad reinforcing bars, wire rod, wires, welded fabrics for the reinforcement of concrete, and steel bars, and wire for the pre-stressing of concrete (cont'd)	Fatigue (Forces up to 400 kN)	BS 4449:1997 (Superseded) BS 4449 + A3 BS 6744 BS EN ISO 15630-2:2002 (withdrawn) BS EN ISO 15630-1 BS EN ISO 15630-2 BS EN ISO 15630-3
	Tensile (Forces up to 1500 kN)	BS 4449:1997 (Superseded) BS 4449 +A3 BS 4482:1985 (Withdrawn) BS 4482 BS 4483:1998 (Withdrawn) BS 4483 BS 4486 BS 6744 BS EN ISO 6892-1 (Method B) excluding Annex G BS EN ISO 15630-1 BS EN ISO 15630-2 BS EN ISO 15630-3 ASTM A615/A615M ASTM A706/A706M
	Weld shear	BS 4483:1998 (withdrawn) BS 4483 BS EN ISO 15630-2
	Dimensional Tests	
	Determination of geometrical characteristics Indentation measurements Relative rib area Deviation from nominal mass per metre	BS EN ISO 15630-1 BS EN ISO 15630-2 BS EN ISO 15630-3
	Determination of geometrical characteristics Relative rib area	BS 6744

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS (cont'd)		
Carbon steel, stainless steel & stainless steel clad reinforcing bars, wire rod, wires, welded fabrics for the reinforcement of concrete, and steel bars, and wire for the pre-stressing of concrete (cont'd)	<u>Dimensional Tests (cont'd)</u>	
	Effective cross sectional area Projected and relative rib area	BS 4449:1997 (Superseded) BS 4449 + A3
	Measurement of Deformations	ASTM A615/A615M ASTM A706/A706M
	<u>Metallurgical Tests</u>	
	Macro examination	Documented In-House Method PM23
Welded carbon & stainless steel reinforcing bars	<u>Mechanical Tests</u>	
	Bend	BS EN ISO 17660-1
	Tensile (Forces up to 1500 kN)	BS 4449:1997 (Superseded) BS 4449 + A3 BS 6744 BS 7123:1989 (Superseded) BS EN ISO 17660-1
	Hardness survey (HV30, HV10 & HV1.0)	BS EN ISO 9015-1 BS EN ISO 15614-1
	Weld shear (Forces up to 900 kN)	BS EN ISO 15630-2 BS EN ISO 17660-1
	<u>Metallurgical</u>	
	Macro examination	BS 7123:1989 (Superseded) BS EN ISO 17660-1 BS EN ISO 17660-2 Documented In-House Method PM25
Mechanical splices, (couplers) for reinforcement of concrete	<u>Mechanical Tests</u>	
	Tensile (Forces up to 1500 kN)	BS 4449:1997 (Superseded) BS 4449 + A3 BS EN ISO 15630-1 BS 8597 Sellafield Engineering Standard ES_0_3110_2

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests</u>	
Mechanical splices, (couplers) for reinforcement of concrete (cont'd)	Compression (Forces up to 1500 kN)	Documented In-House Method PM51 Sellafield Engineering Standard ES_0_3110_2
	Cyclic tensile (Forces up to 1500 kN)	Documented In-House Methods PM50 & PM 58 Sellafield Engineering standard ES0_3110_2
	Low cycle reverse loading tests, S1, S2 and S	ISO 15835-2:2009 (superseded) ISO 15835-2
	Fatigue (Forces up to 400 kN)	BS 8597 BS EN ISO 15630-1
	Slip test	BS 8597 ISO 15835-2:2009 (superseded) ISO 15835-2
	Tensile (Temperature ≤ -7 °C) (Forces up to 1200 kN)	Documented In-House Method PM49 Sellafield Engineering standard ES_0_3110_2
	Determination of permanent offset (elongation / slip)	BS 8110-1:1997 (Withdrawn) Documented In-House Method PM18 & PM45 Sellafield Engineering Standard ES_0_3110_2
Headed anchors for reinforcing steel	Tensile (Forces up to 1500 KN)	Documented In-House Methods PM61 & PM62 Sellafield Engineering Standard ES_0_3110_2
	Load Transfer in air (tensile test)	ISO 15698-2
	Robustness Test (wedge tensile test)	ISO 15698-2

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
METALS, ALLOYS and METAL PRODUCTS (cont'd)	<u>Mechanical Tests (cont'd)</u>	
Headed anchors for reinforcing steel (cont'd)	Permanent elongation / slip in tension or compression (Forces up to 1500 kN)	Documented In-House Methods PM61 & PM62 Sellafield Engineering Standard ES_0_3110_2
	Tensile (Temperature ≤ -7 °C) (Forces up to 1500 kN)	Documented In-House Method PM62 Sellafield Engineering Standard ES_0_3110_2
	Cyclic Tensile (Forces up to 1500 kN)	Documented In-House Method PM63 Sellafield Engineering Standard ES_0_3110_2
Bar, wire and strand for the pre-stressing of concrete	Modulus of elasticity (Forces up to 1000 kN)	BS EN ISO 15630-3

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
PLASTICS, INCLUDING REINFORCED PLASTICS, FIBRE REINFORCED PLASTIC COMPOSITES, LAMINATES and RESINS	<u>Physical Tests</u>	
	Glass Content	BS EN ISO 1172 Method A
	Resin, Fibre and Void Content	BS ISO 14127 Procedure A3
	Density and Specific Gravity (Relative Density)	ASTM D792
	Water absorption	BS EN ISO 62
	<u>Thermal Properties Analysis</u>	
	Glass transition temperature by dynamic mechanical analysis (DMA)	BS ISO 6721-11 ASTM D7028
	Coefficient of thermal expansion by thermomechanical analysis (TMA)	BS ISO 11359-1 BS ISO 11359-2 ASTM E831
	Glass transition temperature By Differential Scanning Calorimeter (DSC)	BS EN ISO 11357-2
	<u>Mechanical Tests</u> (Performed in an environment of controlled temperature and relative humidity)	
	Tensile properties (Forces up to 250 kN)	BS EN ISO 527-2 BS EN ISO 527-4 BS EN ISO 527-5 ASTM D3039/D3039M
	Shear properties V-Notched Rail Shear Method	ASTM D7078/D7078M
	Shear properties V-Notched Beam Method	ASTM D5379/D5379M

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
PLASTICS, INCLUDING REINFORCED PLASTICS, FIBRE REINFORCED PLASTIC COMPOSITES, LAMINATES and RESINS (cont'd)	<u>Mechanical Tests</u> (Performed in an environment of controlled temperature and relative humidity) (cont'd)	
	Apparent interlaminar shear strength (Short Beam) (Forces up to 10 KN)	BS EN ISO 14130 ASTM D2344/D2344M
	Barcol hardness	BS 2782-10: Method1001:1977 (Withdrawn)
	Compressive properties (Forces up to 250 KN)	BS EN ISO 604 ASTM D6641/D6641M
	Compressive modulus and strength	BS EN ISO 14126 + Corr 1 prEN 2850: Ed P2
	Determination of heat deflection temperature	BS EN ISO 75-1 BS EN ISO 75-2
	Flexural properties (Forces up to 10 kN & 100 kN)	BS EN ISO 178 + A1 BS EN ISO 14125 + A1 ASTM D790
	In-plane shear strength at 5%/shear strain/shear modulus by tensile test of a ±45° laminate (Forces up to 250 kN)	BS EN ISO 14129 ASTM D3518/D3518M
ADHESIVES	<u>Mechanical Tests</u> (Performed in an environment of controlled temperature and relative humidity)	
	Lap shear strength of rigid-to-rigid bonded assemblies (Forces up to 250 kN)	ISO 4587
	Climbing drum peel (Forces up to 10 kN)	ASTM D1781
	Core shear properties of sandwich constructions by beam flexure (Forces up to 250 kN)	ASTM C393/C393M

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ADHESIVES (cont'd)	Mechanical Tests (Performed in an environment of controlled temperature and relative humidity)	
Sandwich Construction (Core)	Flatwise Tensile	ASTM C297/C297M

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
PLUMBING ITEMS. ITEMS IN CONTACT WITH THE WATER DISTRIBUTION NETWORK	Mechanical, Physical tests and examination of water fittings wich are subject to the UK regualtions scheme	Methods documented in the Water Regualtions Advisory Scheme Test Code Sheets
Taps, valves, float operated valves, plug cocks, ferrules, water heaters, water meters and plumbing fittings for use with tube/pipe.	Closure	1111.1
	Porosity	1112.1
	Joint Effectiveness	1113.1
Draw-off taps, compression type fittings for tube/pipe	Torque – Operating Mechnism	1315.1
	Torque – Connection & Disconnection	1315.2
	Torque – Backnuts	1315.4
Compression type fittings for tube/pipe	Tension - Single pull (Pull out of assembled joint)	1314.1 1314.7 1314.9 1314.10 1314.11 1314.12 1314.13 1314.14 1314.15
All water fittings	Tension – Multiple pull (Pull out of assembled joint)	1314.8
	Corrosion Protection	1412.1
	Means for Connection & Disconnection	1611.5
	Visual Inspection Seal to be readily renewable	1611.8
	Visual Inspection Fixing of washer plate	1611.9

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
PLUMBING ITEMS. ITEMS IN CONTACT WITH THE WATER DISTRIBUTION NETWORK (cont'd)	<u>Mechanical, Physical tests and examination of water fittings wich are subject to the UK regualtions scheme</u> (cont'd)	Methods documented in the Water Regualtions Advisory Scheme (cont'd)
All water fittings (cont'd)	Visual Inspection All fittings	4001.11
	Visual Inspection Means of Operation	1611.10
	Effect upon water quality (non-metallic materials)	2111.1
	Marking for identification	6001.1
	Tap Gap	2213.18 2213.19
	Linear Dimensions	5011.1
Soldered fittings in contact with potable water	Determination of the presence of Lead in solder	2111.3
Plastic pipes and fittings	Determination of Opacity	2114.2 BS EN ISO 7686:2005

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
FLEXIBLE SCOPE CONSTRAINTS ENGINEERING and STRUCTURAL COMPONENTS, PRODUCTS, FIXINGS, WELDMENTS AND RIGID PLASTICS, FIBRE REINFORCED POLYMERIC MATERIALS, PLUMBING ITEMS, ITEMS IN CONTACT WITH THE WATER DISTRIBUTION NETWORK	Tensile & compressive forces, Fatigue, Displacement, Bending, Hardness, Metallurgy, Physical properties (Polymers and composites), Dimensional measurement, Elemental analysis. • Forces up to ± 1500 kN • Forces up to ± 250 kN (Polymers & Composites) • Fatigue ± 400 kN • Dimensional (within calibrated limits of the optical projector and measuring instruments) • Hardness (Vickers & Barcol) • Pressure (Hydrostatic) up to 60 Bar	Documented In-House Methods developed using procedure RT 8
END		