



Material Tech Company Limited

進科檢測有限公司

ADDRESS : 105 San Lee Uk Tsuen, Tin Ha Road, Yuen Long, New Territories, Hong Kong
地址 香港新界元朗田廈路新李屋村105號

ENQUIRY Mr Felix Chan, Managing Director
查詢 陳景華先生，董事總經理

TELEPHONE 2973 0138
電話

FAX 2973 0003
傳真

E-MAIL marketing@materialtech.com.hk
電郵

CLIENTELE Public
服務對象 公眾



Scope of Accreditation
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ADDRESS

地址

Main Laboratory : 105 San Lee Uk Tsuen, Tin Ha Road, Yuen Long, New Territories, Hong Kong
香港新界元朗田廈路新李屋村 105 號

Test Location : 中國廣東省東莞市高埗鎮低涌村創興路廉商智造產業園 G 棟一樓四、五區

ACCREDITED TEST CATEGORY : Calibration Services 校正服務
認可測試類別 Construction Materials 建築材料

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Calibration Services 校正服務		
ITEM TESTED OR MEASURED 測試或量度項目	SPECIFIC TEST OR PROPERTY MEASURED® 特定測試或量度的特性®	CALIBRATION AND MEASUREMENT CAPABILITY (CMC)* 校準和測量能力*
Construction materials testing equipment - Compacting bar	Verification in accordance with in-house method TP-C037 for the dimensional and mass requirements as specified in CS1: 2010 Vol. 1 App. A10	
	Dimensions of ramming face: 25 mm x 25 mm Length: 380 mm Mass: 1.8 kg	0.13 mm 1.0 mm 0.05 kg
	On-site verification in accordance with in-house method TP-C037 for the dimensional and mass requirements as specified in CS1: 2010 Vol. 1 App. A10	
	Dimensions of ramming face: 25 mm x 25 mm Length: 380 mm Mass: 1.8 kg	0.13 mm 1.0 mm 0.05 kg
- Cube mould	Verification in accordance with in-house method TP-C001 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A25	
	Dimension: 100 mm or 150 mm Flatness: not more than 0.03 mm or 0.06 mm Perpendicularity: 0.5 mm Parallelism: 1 mm	0.05 mm 0.02 mm 0.05 mm 0.1 mm
	On-site verification in accordance with in-house method TP-C001 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A25	
	Dimension: 100 mm or 150 mm Flatness: not more than 0.03 mm or 0.06 mm Perpendicularity: 0.5 mm Parallelism: 1 mm	0.05 mm 0.02 mm 0.05 mm 0.1 mm

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Construction materials testing equipment (cont'd) - Curing tank - Rebound hammer - Slump cone	On-site calibration for the following parameters in accordance with in-house method TP-C028: Temperature distribution Efficiency of circulation	0.4 °C 30 s
	Calibration for the rebound hammer in accordance with in-house method TP-C049 using a steel reference anvil which complies with BS EN 12504-2: 2001 Cl. 4.2, or BS EN 12504-2: 2012 Cl. 4.2	1 rebound count
	On-site calibration for the rebound hammer in accordance with in-house method TP-C049 using a steel reference anvil which complies with BS EN 12504-2: 2001 Cl. 4.2, or BS EN 12504-2: 2012 Cl. 4.2	1 rebound count
	Verification in accordance with in-house method TP-C038 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A5 Internal diameter of top: 100 mm Internal diameter of base: 200 mm Wall thickness: minimum 1.5 mm Height: 300 mm	0.5 mm 1.0 mm 0.1 mm 1.0 mm
	On-site verification in accordance with in-house method TP-C038 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A5 Internal diameter of top: 100 mm Internal diameter of base: 200 mm Wall thickness: minimum 1.5 mm Height: 300 mm	0.5 mm 1.0 mm 0.1 mm 1.0 mm

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Construction materials testing equipment (cont'd) - Tamping rod	<p>Verification in accordance with in-house method TP-C036 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A6</p> <p>Diameter: 16 mm Length: 600 mm</p> <p>On-site verification in accordance with in-house method TP-C036 for the dimensional requirements as specified in CS1: 2010 Vol. 1 App. A6</p> <p>Diameter: 16 mm Length: 600 mm</p>	<p>0.08 mm 1.5 mm</p> <p>0.08 mm 1.5 mm</p>

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Length and related measurements - Length measuring instruments - Calliper - Extensometer - Grade C with a gauge length of 100 mm to 300 mm - Grade D with a gauge length of 50 mm to 300 mm - Grade E or F with a gauge length of 25 mm to 300 mm - Class 1 or Class 2 with a gauge length of 25 mm to 300 mm - Linear displacement measuring device	Calibration for length in accordance with in-house method TP-C002 over the following range: 0 mm to 300 mm	0.02 mm
	On-site calibration in accordance with in-house method TP-C002 over the following range: 0 mm to 300 mm	0.02 mm
	On-site verification in accordance with BS 3846: 1970 (excluding the determination of calibration factor) using a calibration rig over the following range of displacement: 0 mm to 5 mm	2 µm
	On-site verification in accordance with BS EN 10002-4: 1995 using a calibration rig over the following range of displacement: 0 mm to 5 mm	2 µm
	On-site verification in accordance with BS EN ISO 9513: 2002 using a calibration rig over the following range of displacement: 0 mm to 5 mm	2 µm
	On-site verification in accordance with BS EN ISO 9513: 2012 using a calibration rig over the following range of displacement: 0 mm to 5 mm	2 µm
	Calibration for length in accordance with in-house method TP-C194 over the following range: 0 mm to 100 mm	0.01 mm

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Mass and related quantities - Electronic balance - Precision laboratory balance	Calibration for mass in accordance with in-house method TP-C005 using OIML Class standard weights E2 from 1 mg to 200 g over the following ranges: 1 mg to 1 g above 1 g to 20 g above 20 g to 100 g above 100 g to 200 g On-site calibration for mass in accordance with in-house method TP-C005 using OIML Class standard weights E2 from 1 mg to 200 g over the following ranges: 1 mg to 1 g above 1 g to 20 g above 20 g to 100 g above 100 g to 200 g	20 µg 75 µg 250 µg 400 µg 20 µg 75 µg 250 µg 400 µg

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Mass and related quantities (Cont'd) - Electronic balance (Cont'd) - Industrial balance	Calibration for mass in accordance with in-house method TP-C005 using OIML Class standard weights F1 from 1 mg to 20 kg over the following ranges: 1 g to 200 g above 200 g to 1 kg above 1 kg to 5 kg above 5 kg to 10 kg above 10 kg to 20 kg above 20 kg to 60 kg On-site calibration for mass in accordance with in-house method TP-C005 using OIML Class standard weights F1 from 1 mg to 20 kg over the following ranges: 1 g to 200 g above 200 g to 1 kg above 1 kg to 5 kg above 5 kg to 10 kg above 10 kg to 20 kg above 20 kg to 60 kg	2 mg 15 mg 20 mg 150 mg 200 mg 650 mg 2 mg 15 mg 20 mg 150 mg 200 mg 650 mg

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Mass and related quantities (Cont'd) - Force testing machine - Compression testing machine - Marshall testing machine	On-site calibration for compressive force using Class 1 load cells and verification of class in accordance with BS EN ISO 7500-1: 2004, or BS EN ISO 7500-1: 2018 using constant true force method or constant indicated force method over the following range: 0.3 kN to 3000 kN	0.3 % of reading
	On-site calibration for compressive force using Class 1 load cells and verification of class in accordance with BS EN 12390-4: 2000 Table 1 and Annex B using constant true force method or constant indicated force method over the following range: 0.3 kN to 3000 kN	0.3 % of reading
	On-site calibration for compressive force using Class 1 load cells and verification of class in accordance with BS EN ISO 7500-1: 2018 using constant true force method or constant indicated force method over the following range: 0.3 kN to 50 kN	0.3 % of reading
	On-site calibration for compressive force using Grade 1.0 load cells and verification of grade in accordance with BS 1610: Part 1: 1992 using constant true force method or constant indicated force method over the following range: 0.3 kN to 50 kN	0.3 % of reading

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Mass and related quantities (Cont'd) - Force measurements (cont'd) - Universal testing machine in compression mode - Load cell	On-site calibration for compressive force using Class 1 load cells and verification of class in accordance with BS EN ISO 7500-1: 2004, or BS EN ISO 7500-1: 2018 using constant true force method or constant indicated force method over the following range: 0.3 kN to 3000 kN	0.3 % of reading
	On-site calibration for compressive force using Grade 1.0 load cells and verification of grade in accordance with BS 1610: Part 1: 1992 using constant true force method or constant indicated force method over the following range: 0.3 kN to 3000 kN	0.3 % of reading
	Calibration for compressive force in accordance with in-house method TP-C204 over the following ranges : 1 kN to 5 kN above 5 kN to 100 kN above 100 kN to 1000 kN	0.85 % to 0.6 % of reading 0.4 % of reading 0.3 % of reading

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Temperature measurement - Analogue thermometer - Digital thermometer - Liquid-in-glass thermometer - Digital thermometer with PRT sensor	Calibration for temperature in accordance with in-house method TP-C131 over the following ranges: -20 °C to 10 °C above 10 °C to 80 °C above 80 °C to 170 °C	0.6 K
		0.6 K
		1.3 K
	Calibration for temperature in accordance with in-house method TP-C129 over the following ranges: -20 °C to 10 °C above 10°C to 80°C above 80°C to 170°C	0.3 K
		0.2 K
		0.4 K
	Calibration for temperature in accordance with in-house method TP-C130 over the following ranges: -20 °C to 10 °C above 10 °C to 80 °C above 80 °C to 170 °C	0.3 K
		0.2 K
		0.4 K
	Calibration for temperature in accordance with in-house method TP-C129 over the following ranges: -20 °C to 10 °C 10 °C to 80 °C above 80 °C to 170 °C	0.3 K
		0.2 K
		0.4 K

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Construction Materials 建築材料		
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Adhesive	Pull-off test of mortar in the force range 0.6 kN to 20 kN	Hong Kong Housing Authority Materials Testing Services (2018/2020) for Maintenance and Building Materials Specification Part D Cl. 2.1.15 Method 1
	Pull-off test of adhesive in the force range 0.6 kN to 20 kN	In-house method TP-F028
	Pull-off test of render in the force range 0.6 kN to 20 kN	In-house method TP-F053
	Pull-off test of tiles in the force range 0.6 kN to 20 kN	In-house method TP-F055 Hong Kong Housing Authority Materials Testing Services (2018/2020) for Maintenance and Building Materials Specification Part D Cl. 7.11 Hong Kong Housing Authority Specification Library (2014) FIN5.T150.7 (3)
Admixtures (chemical analysis)	Ash content of liquid admixture	BS 5075: Part1:1982 (Amd.4910) App.D2
	Dry material content	BS 5075: Part1:1982 (Amd.4910) App.D1
	Conventional dry material content of liquid admixture	BS EN 480-8: 2012
	pH of liquid admixture	ISO 4316: 1977 (E)
	Relative density of liquid admixture	BS 5075: Part 1: 1982 (Amd. 4910) App. D.3
	Density of liquid admixture	ISO 758: 1976
	Chloride ion content of liquid admixture	BS 5075: Part 1: 1982 (Amd. 4910) App. E
	Acid soluble alkali content of liquid admixture (equivalent Na ₂ O)	BS EN 480-12: 2005 (Flame photometer)
Water-soluble chloride content	BS EN 480: Part 10: 2009 (Method 3)	

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Aggregates	Sampling	BS 812: Part 102: 1989 CS3: 2013 Section 8
	Particle size distribution	BS 812: Section 103.1: 1985 + Amd. 6003 (by sieve analysis) BS EN 933-1: 2012 CS3: 2013 Section 10 (by sieve analysis)
	Flakiness index	BS 812: Section 105.1: 1989 BS EN 933-3: 2012 CS3: 2013 Section 11
	Elongation index	BS 812: Section 105.2: 1990 CS3: 2013 Section 12
	Methylene blue value	CS3: 2013 Section 13
	Los Angeles value	CS3: 2013 Section 14
	Aggregate impact value	BS 812: Part 112: 1990 + Amd. 8772 CS3: 2013 Section 15
	Ten per cent fines value	BS 812: Part 111: 1990 CS3:2013 Section 16
	Particle densities and water absorption	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 5 CS3: 2013 Section 17
	Moisture content	BS 812: Part 109: 1990 (by oven drying method) CS3: 2013 Section 18 (by oven drying method)
	Soundness	BS 812: Part 121: 1989 BS 6349: Part 1: 1984 App. B BS EN 1367-2: 2009 CS3: 2013 Section 19
	Drying shrinkage	CS3: 2013 Section 20
	Alkali silica reaction potential by ultra-accelerated mortar-bar test	CS1: 2010 Section 22
	Aggregate crushing value	BS 812: Part 110: 1990
	Bulk density, voids and bulking	BS 812: Part 2: 1995 + Amd. 9195 & 10379
Clay, silt and dust content	BS 812: Part 1: 1975 + Amd. 4875 (by decantation method)	

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Aggregates (cont'd)	Compacting fraction value of aggregates for granular bed	General Specification for Civil Engineering Works (2006) Vol. 1 App. 5.2 Hong Kong Housing Authority Specification Library (2014) DRA2.T250.7 to DRA2.T280.7
	Resistance of aggregates to fragmentation	BS EN 1097-2: 2010 Cl. 5
	Resistance to degradation of small size coarse aggregate by abrasion and impact in the Los Angeles Machine	ASTM C131-96 with modifications ASTM C131-06 with modifications ASTM C131/C131M-20 modifications
	Resistance to degradation of large size coarse aggregate by abrasion and impact in the Los Angeles Machine	ASTM C535-96 with modifications ASTM C535-16 with modifications
	Shell content in coarse aggregates	BS 812: Part 106: 1985
	Water Absorption	BS EN 1097-6: 2013 Annex B
	Aggregates (chemical analysis)	Water-soluble chloride salts
Total sulphate content by acid extraction		BS 812: Part 118 : 1998 Cl.6 <i>Excluding</i> Cl. 4
Water-soluble chloride ion content		CS3: 2013 Section 21.3
Acid-soluble chloride ion content		CS3: 2013 Section 21.4
Acid-soluble sulphate content		CS3: 2013 Section 21.5
Total sulphur content		CS3: 2013 Section 21.6
Presence of humus		CS3: 2013 Section 21.7

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Bituminous materials	Air voids content of bituminous specimens	BS EN 12697-8: 2003 BS EN 12697-8: 2018
	Bulk density of compacted bituminous specimens (saturated surface dry)	BS EN 12697-6: 2003 Procedure A & B BS EN 12697-6: 2012 Procedure A & B
	Bulk specific gravity and density of non-absorptive compacted bituminous mixtures	ASTM D2726-96a ASTM D2726/D2726M -17
	Density, stability and flow of bituminous mixtures using Marshall Apparatus	ASTM D1559-89 Chapter 7, MS-2 Asphalt Mix Design Methods (7th edition 2014), Asphalt Institute
	Percentage air voids in compacted dense bituminous paving mixtures	ASTM D3203-94 ASTM D3203/D3203M -17
	Quantitative extraction of bitumen from bituminous paving mixtures	ASTM D2172-95 (Method A using ashing method) ASTM D2172/D2172M -17e1
	Sieve analysis of fine and coarse aggregates and materials finer than 75 micron sieve in mineral aggregates by washing	ASTM C117-95 ASTM C136-96a with modification
	Theoretical maximum specific gravity of bituminous paved mixtures	ASTM D2041-95 (weighing in water method)
Bituminous materials (pure bitumen)	Density of semi-solid and solid asphalt materials by nickel crucible method	ASTM D3289-17
	Ductility of bituminous materials	ASTM D113-07
	Effect of heat and air on asphaltic materials (thin-film oven test)	ASTM D1754/D1754M-09 (2014)
	Loss in mass after heating of industrial bitumen	BS EN 13303: 2009
	Penetration of bituminous materials	ASTM D5/D5M-13 ASTM D5/D5M-19 BS EN 1426: 2015
Sieve analysis of mineral filler for asphalt paving mixtures	ASTM D546-17 with modifications	

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Bituminous materials (pure bitumen) (cont'd)	Solubility of asphalt materials in trichloroethylene	ASTM D2042-15
	Softening point by ring and ball method	ASTM D36/D36M-14 BS 2000: Part 58: 2015 BS EN 1427: 2015
	Viscosity of asphalt by vacuum capillary viscometer	ASTM D2171/D2171M-10
Cement	Compressive strength of broken mortar prisms in the force range 10 kN - 300 kN	BS EN 196-1: 2005
	Compressive strength of hydraulic cement mortars	ASTM C109/C109M-21 with modifications
	Density	BS EN 196-6: 1992 Annex NC BS EN 196-6: 2010 Annex NC
	Fineness	BS EN 196-6: 1992 (by Blaine Method) BS EN 196-6: 2010 (by Blaine Method)
	Fineness of hydraulic cement by air-permeability apparatus	ASTM C204-18 Method A
	Flexural strength of mortar prisms in the force range 1 kN - 10 kN	BS EN 196-1: 2005
	Potential expansion of Portland-cement mortars exposed to sulfate	ASTM C452-21
	Setting times	BS EN 196-3: 2005 + A1: 2008
	Soundness	BS EN 196-3: 2005 + A1: 2008
	Standard consistence	BS EN 196-3: 2005 + A1: 2008

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Cement (chemical analysis)	Chloride content (Cl ⁻)	BS EN 196-2: 2013 Cl. 4.5.16
	Residue insoluble in hydrochloric acid and sodium carbonate	BS EN 196-2: 2013 Cl. 4.4.3
	Loss on ignition (L.O.I.)	BS EN 196-2: 2013 Cl. 4.4.1
	Sulfate content (as SO ₃)	BS EN 196-2: 2013 Cl. 4.4.2
	Acid-soluble alkali content	BS EN 196-2: 2013 Cl. 4.5.19 (Reference method)
Concrete	Sampling fresh concrete on site	CS1: 2010 + Amd. 1/2017 Section 1
	Slump of fresh concrete	CS1: 2010 + Amd. 1/2017 Section 2 Part I
	Flow table test	CS1: 2010 Section 2 Part IV
	Slump flow test	CS1: 2010 Section 2 Part V
	Stiffening time of fresh concrete	CS1: 2010 Section 3
	Density of compacted fresh concrete	CS1: 2010 Section 5
	Air content of fresh concrete	CS1: 2010 Section 6
	Making test cubes from fresh concrete	CS1: 2010 Section 7
	Curing test specimens (Tropical zone temperature)	CS1: 2010 Section 10
	Mixing and sampling fresh concrete	CS1: 2010 Section 11
	Compressive strength of concrete cubes in the force range 50 kN – 3000 kN	CS1: 2010 Section 12
	Tensile splitting strength of cylinders in the force range 50 kN – 3000 kN	CS1: 2010 Section 13
	Obtaining core samples	CS1: 2010 Section 15
Compressive strength of concrete cores in the force range 50 kN – 3000 kN	CS1: 2010 Section 15	

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105 San Lee Uk Tsuen, Tin Ha Road, Yuen Long, New Territories, Hong Kong

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Construction Materials 建築材料		
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Concrete (cont'd)	Density of hardened concrete	CS1: 2010 Section 16
	Depth of penetration of water under pressure	CS1: 2010 Section 18
	Concrete's ability to resist chloride ion penetration	CS1: 2010 Section 19
	Bleeding test	ASTM C232-99 Method A ASTM C232-09 Method A ASTM C232-09 Method A with modification
	Temperature monitoring of concrete structure (heat of hydration)	In-house method TP-F034 In-house method TP-F060
	Temperature monitoring of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4(b)
	Temperature rise evaluation test on concrete (TRET Block)	In-house method TP-F033 In-house method TP-F059
	Time of setting of concrete mixtures by penetration resistance	ASTM C403/403M-90 ASTM C403/403M-90 with modifications ASTM C403/403M-16 ASTM C403/403M-16 with modifications
	Water absorption	BS 1881: Part 122: 1983 + Amd. 6108
	Removal of concrete cover to expose reinforcement	Hong Kong Housing Authority Materials Testing Services (2014/2016) for Maintenance & Building Materials Specification Part D Cl. 4.2.1
	Crack survey	Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.14
	Obtaining drilling powder samples	Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 6.4
	Suitability of water for making concrete (strength and setting time)	BS EN 196-1: 1995 BS EN 196-3: 1995 in conjunction with the following specification(s): BS EN 1008: 2002 Cl. 4.4

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Concrete (chemical analysis)	Chloride content	CS1: 2010 Section 21.10.2
	Cement and aggregate content (by CaO determination)	CS1: 2010 Section 21.6.4, 21.6.6 & 21.6.7
	Sulphate content	CS1: 2010 Section 21.10.3
Concrete - Hardened (chemical analysis)	Chloride content	BS EN 14629: 2007 Cl. 4.3.4.1 (method A)
Concrete (diagnostic)	Carbonation test	BS EN 14630: 2006 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.1 Method 1 & Method 2
	Covermeter survey	BS 1881: Part 204: 1988 Cl. 7.3 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.2 Method 1 & Method 2
	Half cell potential measurement	ASTM C876-91 ASTM C876-15 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.3.4
	Resistivity measurement	BS 1881: Part 201: 1986 Cl. 2.3
	Surface hardness measurement	BS 1881: Part 202: 1986 BS EN 12504-2: 2001 BS EN 12504-2: 2012 Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.1
	Ultrasonic pulse velocity measurement	ASTM C597-02 BS 1881: Part 203: 1986 (by direct transmission) BS EN 12504-4: 2004 (by direct and semi-direct measurement) Hong Kong Housing Authority Materials Testing Services (2008/2010) for Maintenance & Building Materials Specification Part D Cl. 4.1.2

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Foundation	Plate load test (PLT)	BS 1377: Part 9: 1990 + Amd. No. 1 Cl. 4.1 (incremental loading / maintain load test) excluding Cl. 4.1.6.1 Buildings Department Code of Practice for Foundations (Apr 2017) Cl. 8.2(2) excluding 8.2(2)(f) to (h)
Ground Grulated Blastfurnace Slag (GGBS)	Activity index	BS EN 196-1: 2016 in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.2.3
	Density	BS EN 196-6: 2010 Annex NC in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.5g
	Fineness	BS EN 196-6: 2010 (by Blaine method) in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.1
	Initial setting time	BS EN 196-3: 2016 in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.2.2
	Moisture content	BS EN 15167-1: 2006 + Corr. 1: 2006 Annex A
Ground granulated blastfurnace slag (GGBS) (chemical analysis)	Total alkali content (equivalent Na ₂ O)	BS EN 196-2: 2013 Cl. 4.5.19 (Reference method)
Grout	Making of grout cubes	CS1: 1990 + Amd. 1101 & 1102 Section 7 with modifications CS1: 2010 Section 7 with modifications
	Compressive strength of grout cubes in the force range 50 kN to 3000 kN	CS1: 2010 Section 12
	Bleeding and volume change by wick-induced test	BS EN 445: 2007 Cl. 4.5
	Bleeding and free expansion	ASTM C940-98a ASTM C940-98a with modifications ASTM C940-16 ASTM C940-16 with modifications General Specification for Civil Engineering Works (1992) Vol. 2 Cl. 17.60 General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 17.60

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Grout (cont'd)	Flow of grout (Flow cone method)	ASTM C 939-97 ASTM C 939-02
	Fluidity test by cone method	BS EN 445: 2007 Cl. 4.3.1
Metallic materials	Mass per meter of steel reinforcing bars	CS2: 2012 (Rev. 5) Cl. 6.1 & 6.2
	Tensile test of steel reinforcing bars for reinforcement of concrete in the force range 10 kN – 2000 kN	BS EN ISO 6892-1: 2019 Cl. 10.3.3 Method B in conjunction with the following specification(s): CS2: 2012 (Rev. 5) Cl. 6.1 & 6.4
	Rebend test of steel reinforcing bars for reinforcement of concrete	CS2: 2012 (Rev. 5) Cl. 6.1 & 6.5
	Bond property of steel reinforcing bars by surface geometry measurement	CS2: 2012(Rev. 5) Cl. 6.1 & 6.7.2
	Tensile test & slip/permanent elongation test of a mechanical coupler for reinforcing bar in the force range 10 kN - 2000 kN	BS 8110: Part 1: 1997 Cl. 3.12.8.16.2 General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 15.35 Buildings Department Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.3
	Tensile test of structural steel section in the force range 10 kN – 2000 kN	BS EN ISO 6892-1: 2016 BS EN ISO 6892-1: 2009 BS EN 10002-1: 2001 in conjunction with the following specification(s): BS EN 10025-1: 2004 Cl. 10.2.1 BS EN 10025-2: 2004 Cl. 10.2 BS EN 10113-1: 1993 Cl. 8.6.2.1 BS EN 10113-2: 1993 Cl. 7.4.1 BS EN 10113-3: 1993 Cl. 7.4.1 BS EN 10155: 1993 Cl. 8.7.2.1 BS EN 10137-1: 1996 Cl. 8.5.2.2 BS EN 10137-2: 1996 Cl. 7.4.1 BS EN 10210-1: 2006 Cl. 9.2 BS EN 10219-1: 2006 Cl. 6.7.1 & 9.2.2
	Tensile test of metallic materials in the force range 10 kN – 2000 kN	BS EN 10002-1: 2001 BS EN ISO 6892-1: 2009 BS EN ISO 6892-1: 2016

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Metallic materials (cont'd)	Static tension test, static compression test, cyclic tension & compression tests for mechanical connector systems (Type 2 Splice) for steel reinforcing bars in the force range 10 kN - 2000 kN	ICC Evaluation Service, Inc. AC133 (Approved May 2008, Effective 1 Jun 2008) Cl. 4.1.2 ICC Evaluation Service, Inc. AC133 (Approved May 2008, Effective 1 Jun 2008) Cl. 4.1.2 with modifications ICC Evaluation Service, Inc. AC133 (Approved Jan 2010, Effective 1 Jul 2010) Cl. 4.1.2 ICC Evaluation Service, Inc. AC133 (Approved Jan 2010, Effective 1 Jul 2010) Cl. 4.1.2 with modifications Buildings Department Code of Practice for Structural Use of Concrete (2013) Cl. 3.2.8.4(b), (c) & (d)
	Charpy V-notch impact test of metallic materials	BS EN 10045-1:1990 BS EN ISO 148-1: 2016 in conjunction with the following specification(s): BS EN 10210-1: 2006 Cl. 9.2.3 BS EN 10219-1: 2006 Cl. 9.2.3 BS EN 10025-1: 2004 Cl. 10.2.2 BS EN 10025-2: 2004 Cl. 10.2 BS EN 10025-4: 2004 Cl. 10.2
	Vickers hardness test of metallic materials	BS EN 23878: 1993 BS EN ISO 6507-1: 2005
Metallic materials (non-destructive)	Ultrasonic test of H beams with parallel flanges and IPE beams (manual method)	BS EN 10306: 2002
	Ultrasonic test of steel flat products (reflection method)	BS EN 10160: 1999
	Ultrasonic test of steel plate, strip and wide flat (manual method)	BS 5996: 1993

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Pipes - Copper pipes & fittings - Non-alloy steel tubes	Bending test of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	BS EN ISO 8491: 2004 In-house method TP-W001 in conjunction with the following specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 10.6
	Dimensions and tolerances of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	In-house method TP-W001 in conjunction with the following specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 7.3.3, 7.3.4 & 7.3.5 Table 4 & 5
	Drift expanding test of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	BS EN ISO 8493: 2004 In-house method TP-W001 in conjunction with the following specification(s): BS EN 1057: 2006 +A1: 2010 Cl. 10.7
	Free from defects test (hydrostatic test) of copper and copper alloys (seamless) round copper tubes for water, gas in sanitary, and heating applications	In-house method TP-W001 in conjunction with the following specification(s): BS EN 1057: 2006 +A1: 2010 Annex C2
	Dimensions, masses and tolerances of non-alloy steel tubes suitable for welding and threading	In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 (E) Cl.8.4 Table 2
	Flattening test of non-alloy steel tubes suitable for welding and threading	BS EN ISO 8492: 2013 In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 (E)
	Leaktightness test of non-alloy steel tubes	In-house method TP-W004 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 Cl. 9.6
	Visual examination of non-alloy steel tubes suitable for welding and threading	In-house method TP-W002 in conjunction with the following specification(s): BS EN 10255: 2004 + A1: 2007 (E) Cl. 8.3

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Pulverized fuel ash (PFA)	Fineness	BS 3892: Part 1: 1997 Annex D in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 6
	Initial setting time	BS EN 196-3: 2016 in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 10 BS 3892: Part 1: 1997 Cl. 10 with modifications BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.5
	Moisture content	BS 3892: Part 1: 1997 Annex C BS EN 451-2: 2017 in conjunction with the following specification(s): BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.1
	Particle density	BS EN 196-6: 1992 Annex NC BS EN 196-6: 2010 Annex NC in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 7 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.4
	Soundness	BS EN 196-3: 2016 in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 11 BS 3892: Part 1: 1997 Cl. 11 with modifications BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.3
	Strength factor	BS 3892: Part 1: 1997 Annex F BS 3892: Part 1: 1997 Annex F with modifications in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 9
	Water requirement	BS 3892: Part 1: 1997 Annex E BS EN 450-1: 2005 + A1: 2007 Annex B in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 8 BS 3892: Part 1: 1997 Annex E with modifications BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.6

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Pulverized fuel ash (PFA) (chemical analysis)	Loss on ignition (L.O.I.)	BS EN 196-2: 2013 Cl. 4.4.1 (using 1h ignition time)
	Sulfate content (as SO ₃)	BS EN 196-2: 2013 Cl. 4.4.2
Road surfaces	Chloride content (Cl ⁻)	BS EN 196-2: 2013 Cl. 4.5.16
	Acid soluble alkali content	BS EN 196-2: 2013 Cl. 4.5.19 (Reference method)
	Luminance coefficient under diffuse illumination (Q _d) and retro-reflected luminance (R _L) of road markings	BS EN 1436: 2007(E) Annex A & B excluding Annex B.7
	Permeability of friction coarse materials	General Specification for Civil Engineering Works (2006) Vol. 1 App. 9.1
	Skid resistance of road surfaces/markings using a portable pendulum tester	BS EN 1436: 1998 Annex D BS EN 1436: 2007 + A1: 2008 Annex D Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989)
	Surface regularity of carriageways (by 3 meter / rolling straightedge method)	General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.55 Highways Department (Research and Development Division) Guidance Notes on Road Testing - RD/GN/009 (Sep 1989)
	Texture depth of carriageways (by sand patch test)	General Specification for Civil Engineering Works (2006) Vol. 1 App. 10.1 Highways Department (Research and Development Division) Guidance Notes on Road testing - RD/GN/009 (Sep 1989) Hong Kong Housing Authority Specification Library (2000) RAP 1.T710.3 – 1.T720.3 RAP 2.T910.3 – 2.T1010.3
	Thickness of road marking (by micrometer method)	BS 3262: Part 3: 1989 + Amd. 8785 & 10205 App. B in conjunction with the following specification(s): General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 12.34 (3)

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Rock	Dropping test of rock armour to determine the resistance to fracture	General Specification for Civil Engineering Works (2006) Vol. 2 Cl. 21.97 (1) & (2) & Cl. 21.99 (2)
Soil (Phase I)	Sample preparation for phase I tests	GEOSPEC 3: 2001 Test 4 GEOSPEC 3: 2017 Test 4
	Moisture content by oven-drying at 45°C ± 5°C	GEOSPEC 3: 2001 Test 5.1 GEOSPEC 3: 2017 Test 5.1
	Moisture content by oven-drying at 105°C ± 5°C	GEOSPEC 3: 2001 Test 5.2 GEOSPEC 3: 2017 Test 5.2
	Comparative test for the determination of moisture content by oven-drying	GEOSPEC 3: 2001 Test 5.3 GEOSPEC 3: 2017 Test 5.3
	Liquid limit, plastic limit, plasticity index and liquidity index	BS 1377-2: 1990 GEOSPEC 3: 2001 Test 6.1 and 6.2 GEOSPEC 3: 2017 Test 6.1 and 6.2
	Particle density by gas jar method	GEOSPEC 3: 2001 Test 7.1 GEOSPEC 3: 2017 Test 7.1
	Particle density by small pycnometer method	GEOSPEC 3: 2001 Test 7.2 GEOSPEC 3: 2017 Test 7.2
	Particle size distribution by wet sieving (with dispersant)	GEOSPEC 3: 2001 Test 8.1 GEOSPEC 3: 2017 Test 8.1
	Particle size distribution by wet sieving (without dispersant)	GEOSPEC 3: 2001 Test 8.2 GEOSPEC 3: 2017 Test 8.2
	Particle size distribution by hydrometer (with dispersant)	GEOSPEC 3: 2001 Test 8.5 GEOSPEC 3: 2017 Test 8.5
	Particle size distribution by hydrometer (without dispersant)	GEOSPEC 3: 2001 Test 8.6 GEOSPEC 3: 2017 Test 8.6
	Construction of a continuous particle size distribution curve from the results of wet sieving and sedimentation tests	GEOSPEC 3: 2001 Test 8.7 GEOSPEC 3: 2017 Test 8.7
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.1 GEOSPEC 3: 2017 Test 10.1

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Soil (Phase I) (cont'd)	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.2 GEOSPEC 3: 2017 Test 10.2
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.3 GEOSPEC 3: 2017 Test 10.3
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 2.5 kg rammer)	GEOSPEC 3: 2001 Test 10.4 GEOSPEC 3: 2017 Test 10.4
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.5 GEOSPEC 3: 2017 Test 10.5
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a 1000cc mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.6 GEOSPEC 3: 2017 Test 10.6
	Dry density/moisture content relationship of soils containing particles which are not susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.7 GEOSPEC 3: 2017 Test 10.7
	Dry density/moisture content relationship of soils containing particles which are susceptible to crushing (using a CBR mould and 4.5 kg rammer)	GEOSPEC 3: 2001 Test 10.8 GEOSPEC 3: 2017 Test 10.8
	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine- and medium-grained soils (with small pouring cylinder)	GEOSPEC 3: 2001 Test 11.1 GEOSPEC 3: 2017 Test 11.1
	In-situ bulk density and in-situ dry density of soils by the sand replacement method suitable for fine-, medium-, and coarse-grained soils (with large pouring cylinder)	GEOSPEC 3: 2001 Test 11.2 GEOSPEC 3: 2017 Test 11.2

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Soil (Phase I) (cont'd)	Relative compaction of fill material	Buildings Department PNAP 55 (1994) Cl. 2 App. A Buildings Department PNAP 55 (2005) Cl. 4 App. A GEOSPEC 3: 2001 Test 11.4 GEOSPEC 3: 2017 Test 11.4
	Coefficient of uniformity	General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 6.72(4)
	Particle size distribution of fill materials	General Specification for Civil Engineering Works (2006) Vol. 1 Cl. 6.70 & 6.72(3)
	Sand equivalent value of soils and fine aggregates	ASTM D2419-14
Structural fixings (anchor bolts and dowel bars)	Tensile proof load test of anchor bolts and dowel bars in the force range 5 kN to 200 kN	BS 5080: Part 1: 1993 Cl. 6, 7.1.1 & 7.1.3 with modifications (by incremental loading) In-house method TP-F017 In-house method TP-F018
Valves	Hydrostatic shell and seat tests of copper alloy globe, globe stop and check, check and gate valves	BS 5154: 1991 Cl. 11 BS EN 12266-1: 2012
	Hydrostatic shell and seat tests of predominantly key-operated cast iron gate valves	BS 5163: 1986 Cl. 19 (Amd. 1 & 2) BS EN 12266-1: 2012
Water (Chemical analysis)	Total alkalinity	APHA 23e 2320B
	Chloride content	BS EN 1008: 2002 Cl. 6.1.3 & BS EN 196-21: 1992 Cl. 4
	Sulfate content	BS EN 1008: 2002 Cl. 6.1.3 & BS EN 196-2:2013 Cl. 4.4.2
	Acid soluble alkali content (equivalent Na ₂ O)	BS EN 1008: 2002 Cl. 6.1.3 & BS EN 196-21: 1992 Cl. 7
	Total dissolved solids content	BS 1377-3: 1990 Cl. 8
	pH value	BS 1377-3: 1990 Cl. 9

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Welds (destructive)	Bend test on shear stud connectors	BS 5400-6: 1999 Cl. 5.5.4(b) BS EN ISO 14555: 2014 Cl. 11.3 Buildings Department Code of Practice for Structural Use of Steel (2005) Cl. 14.3.7.3 Buildings Department Code of Practice for Structural Use of Steel (2011) Cl. 14.3.7.3
Welds (non-destructive)	Visual examination	BS 5289: 1976 BS EN 970: 1997 BS EN ISO 17637: 2011 in conjunction with the following specification(s): BS 4515-1: 2000 Table 5 BS 5135: 1984 Table 18 & 19 BS EN 25817: 1992 Table 1 Buildings Department Code of Practice for Structural Use of Steel (2005) Table 14.3b Buildings Department Code of Practice for Structural Use of Steel (2011) Table 14.3b
	Magnetic particle test (magnetic flow method, colour contrast technique using permanent magnets & A.C. yokes)	BS 6072: 1981 (1986) BS EN 1290: 1998 BS EN ISO 9934-1: 2001 BS EN ISO 17638: 2009 in conjunction with the following specification(s): BS 4515-1: 2000 Table 5 BS 5135: 1984 Table 18 & 19 BS EN 25817: 1992 Table 1 Buildings Department Code of Practice for Structural Use of Steel (2005) Table 14.3b Buildings Department Code of Practice for Structural Use of Steel (2011) Table 14.3b

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Welds (non-destructive) (cont'd)	Ultrasonic test	BS 3923: Part 1: 1986 (Level 1, 2A, 2B & 3) (butt welds in plates and 'T'-joint welds) BS EN 1714: 1998 (Level A, B & C) (butt welds in plates and 'T'-joint welds) BS EN ISO 17640: 2010 (Level A, B & C) (butt welds in plates and 'T'-joint welds) in conjunction with the following specification(s): BS 4515-1: 2000 Table 5 BS 5135: 1984 Table 18 & 19 BS 5400-6: 1999 Cl. 5.5.2.4.2 BS EN 25817: 1992 Table 1 BS EN ISO 5817: 2007 Table 1 BS EN ISO 5817: 2014 Table 1 Buildings Department Code of Practice for Structural Use of Steel (2005) Table 14.3b Buildings Department Code of Practice for Structural Use of Steel (2011) Table 14.3b
Steel (chemical analysis) - Carbon steel and low alloy steel	Elemental composition: - - Carbon - Sulphur - Phosphorus - Nitrogen - Copper - Manganese - Chromium - Molybdenum - Vanadium - Nickel Carbon equivalent value (CEV)	In-house method TP-H057 (Spark-OES)
		In-house method TP-H057 (by calculation)

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Aggregates	Particle size distribution	BS 812: Section 103.1: 1985 + Amd. 6003 (by sieve analysis) CS3: 2013 Section 10 (by sieve analysis)
	Flakiness index	BS 812: Section 105.1: 1989 CS3: 2013 Section 11
	Elongation index	BS 812: Section 105.2: 1990 CS3: 2013 Section 12
	Aggregate impact value	BS 812: Part 112: 1990 + Amd. 8772 CS3: 2013 Section 15
	Ten per cent fines value	BS 812: Part 111: 1990 CS3: 2013 Section 16
	Particle densities and water absorption	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 5 CS3: 2013 Section 17
	Moisture content	BS 812: Part 109: 1990 (by oven drying method) CS3: 2013 Section 18 (by oven drying method)
	Aggregate crushing value	BS 812: Part 110: 1990
	Bulk density, voids and bulking	BS 812: Part 2: 1995 + Amd. 9195 & 10379 Cl. 6
	Clay, silt and dust content	BS 812: Part 1: 1975 + Amd. 4875 Cl. 7.2 (by decantation method)
Cement	Compressive strength of broken mortar prisms in the force range 10 kN - 300 kN	BS EN 196-1: 2005 BS EN 196-1: 2016
	Density	BS EN 196-6: 2010 Annex NC
	Fineness	BS EN 196-6: 2010 (by Blaine method)
	Flexural strength of mortar prisms in the force range 1 kN - 10 kN	BS EN 196-1: 2005 BS EN 196-1: 2016
	Setting times	BS EN 196-3: 2005 + AI: 2008 BS EN 196-3: 2016
	Soundness	BS EN 196-3: 2005 + AI: 2008 BS EN 196-3: 2016
	Standard consistence	BS EN 196-3: 2005 + AI: 2008 BS EN 196-3: 2016

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Concrete	Sampling of fresh concrete	CS1: 2010 + Amd. 1/2017 Section 1
	Slump of fresh concrete	CS1: 2010 + Amd. 1/2017 Section 2 Part I
	Making test cubes from fresh concrete	CS1: 2010 Section 7
	Curing test specimens (Tropical zone temperature)	CS1: 2010 Section 10
	Mixing and sampling of fresh concrete	CS1: 2010 Section 11
	Compressive strength of concrete cubes in the force range 50 kN – 3000 kN	CS1: 2010 Section 12
	Density of hardened concrete	CS1: 2010 Section 16
	Determination of temperature of fresh concrete	BS 5328: Part 4: 1990 Cl. 3.4(b)
	Water absorption	BS 1881: Part 122: 2011
	Suitability of water for making concrete (strength and setting time)	BS EN 196-1: 1995 BS EN 196-3: 1995 in conjunction with the following specification(s): BS EN 1008: 2002 Cl. 4.4

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Ground granulated blastfurnace slag (GGBS)	Activity index	BS EN 196-1: 2016 in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.2.3
	Density	BS EN 196-6: 2010 Annex NC in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.5g
	Fineness	BS EN 196-6: 2010 (by Blaine method) in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.1
	Initial setting time	BS EN 196-3: 2016 in conjunction with the following specification(s): BS EN 15167-1: 2006 + Corr. 1: 2006 Cl. 5.3.2.2
	Moisture content	BS EN 15167-1: 2006 Annex A
Pulverized fuel ash (PFA)	Activity index	BS EN 196-1: 2016 in conjunction with the following specification(s): BS EN 450-1: 2012 Cl. 5.3.2
	Fineness	BS 3892: Part 1: 1997 Annex D BS EN 451-2: 2017 in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 6 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.1
	Initial setting time	BS EN 196-3: 2016 in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 10 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.5
	Moisture content	BS 3892: Part 1: 1997 Annex C
	Particle density	BS EN 196-6: 1992 Annex NC BS EN 196-6: 2010 Annex NC in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 7 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.4
	Soundness	BS EN 196-3: 2016 in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 11 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.3



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Pulverized fuel ash (PFA) (cont'd)	Strength factor Water requirement	BS 3892: Part 1: 1997 Annex F in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 9 BS 3892: Part 1: 1997 Annex E BS EN 450-1: 2005 + A1: 2007 Annex B in conjunction with the following specification(s): BS 3892: Part 1: 1997 Cl. 8 BS EN 450-1: 2005 + A1: 2007 Cl. 5.3.6