

Schedule

CAST Laboratories Pte Ltd
17 Tuas Avenue 8
Singapore 639232

Certificate No. : LA-1994-0076-A

Issue No. : 18

Date : 30 October 2018

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FIELD OF TESTING : Chemical and Biological Testing

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT
A Aggregate	1. Water Soluble Chloride	BSEN 1744-1 : 2009 + A1 :2012 BS 812-117 : 1988
	2. Acid Soluble Chloride	BSEN 1744-5 : 2006
	3. Water Soluble Sulphate	BSEN 1744-1 : 2009 + A1 :2012
	4. Acid Soluble Sulphate	BSEN 1744-1 : 2009 + A1 :2012 BS 812-118 : 1988
	5. Determination of Free Lime by Complexometry (Calcium Carbonate Content)	BSEN 1744-1 : 2009 + A1 :2012
	6. Sulfur Containing Compounds	BSEN 1744-1 : 2009 + A1 :2012
	7. Determination of Potential Presence of Humus	BSEN 1744-1 : 2009 + A1 :2012
	8. Determination of Fulvo Acid	BSEN 1744-1 : 2009 + A1 :2012
	9. Lightweight Organic Contaminators	BSEN 1744-1 : 2009 + A1 :2012
	10. Alkali Silica Reactivity	ASTM C-289-07
	11. Soundness of Aggregate	ASTM C88-13 BS EN 1367-2:2009
	12. Shell Content	SANS 5840:2008
	13. Loss On Ignition	BSEN 1744-1 : 2009 + A1 :2012
B Admixture	1. Homogeneity	BS EN 934-2 : 2009 + A1:2012

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B Admixture	2. Colour	BS EN 934-2 : 2009 + A1:2012
	3. Conventional Dry Material Content	BS EN 480-8 : 2012
	4. pH Value	ISO 4316 : 1977
	5. Total Chloride Content	BS EN ISO 1158 : 1998
	6. Water Soluble Chloride Content	BS EN 480-10 : 2009
	7. Alkali Content	BS EN 480-12 : 2005
	8. Silicon Dioxide Content	BS EN 196-2 : 2013
	9. Absolute Density	ISO 758 : 1976
	10. Relative Density	SS 320 : 1987 D3
	11. Effective Component	BS EN 480-6 : 2005
	12. Ash Content	SS 320 : 1987 D2
	C Cement	1. Loss on Ignition
2. Insoluble Residue		BS EN 196-2 : 2013
3. Sulphate Content		BS EN 196-2 : 2013
4. Chloride Content		BS EN 196-2 : 2013
5. Elemental Composition, Silica, Iron Oxide, Aluminium Oxide, Calcium Oxide, Magnesium Oxide, Manganese		BS EN 196-2 : 2013
6. Alkali Content		BS EN 196-2 : 2013
7. Calcium Oxide Content		BS EN 451-1 : 2017
8. Sulphur Containing Compounds		BS EN 1744-1 : 2009 + A1:2012
9. Dicalcium Silicate Disintegration		BS EN 1744-1 : 2009 + A1:2012
10. Iron Disintegration		BS EN 1744-1 : 2009 + A1:2012
D Soil	1. Chloride Content	BS 1377: Part3:1990

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D Soil	2. Sulphate Content	BS 1377: Part3:1990
	3. pH Value	BS 1377: Part3:1990
	4. Organic Matter Content	BS 1377: Part3:1990
E Ground Water	1. Sulphate Content	BS 1377: Part3:1990
	2. pH Value	BS 1377: Part3:1990
	3. Chloride Content	BS 1377: Part3:1990
F Construction Materials <ul style="list-style-type: none"> • Reclaimed Sand • Soil • Aggregates • Clay • Sludge 	1. Inductively Coupled Plasma-Optical Emission Spectrometry: Antimony, Arsenic, Barium, Cadmium, Chromium, Cobalt, Copper, Lead, Mercury, Molybdenum, Nickel, Selenium, Zinc	EPA 3051A : 2007 EPA 6010C : 2007
	2. Loss on Ignition	BS 1377: Part 3: 1990 ASTM D 2974-14
	3. Rapid determination of Carbonate content of Soil	ASTM D 4373-14
G Polymeric Materials	1. Identification of Polymeric Material by FTIR	ASTM E573-01 Reapproved 2013
	2. FTIR-ATR	ASTM E573-01 Reapproved 2013
H Iron, Mild Steel, Cast Iron, Stainless Steel & Low Alloy Steel	1. C, Si, Mn, P, S, Cr, Mo, Ni, Cu, Al, Ti, Ca, N, Co, Nb, Sn, As, Zr, B, V	Arc Spark Method ASTM E415 : 2017
I Aluminium Alloy, High Silicon Aluminium Alloy	1. Si, Mn, V, Fe, Pb, Co, Sn, Ag, B, Na, As, Be, Bi, Cd, Ca, Li, Sb, Sr, Ga, Zr, Sc, Mg, Zn, Ti	Arc Spark Method CAST/BCED/AP1002
J Copper Alloy	1. Zn, Pb, Sn, P, Mn, Ni, Si, Mg, Cr, Al, C, Nb, B, Cu	Arc Spark Method CAST/BCED/AP1003
K Paints	1. Volatile & Non-volatile Matter	SS 5: Pt B2: 2013

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L Ceramic Tiles • Ceramic Floor and Wall Tiles	2. Density	SS 5: Pt B7: 2013
	3. Dilution	CAST/MAT/TM/002-2015
	1. Chemical Resistance for Acid and Alkali – Glazed tiles	BS EN ISO 10545-13: 2016
	2. Chemical Resistance for Acid and Alkali – Unglazed tiles	BS 6431: Pt 18: 1993 (EN 106) SS 301: 1985 Clause 5.2.1, 9.2.7 & Appendix J; BS EN ISO 10545-13: 2016
M Glazed Ceramic Tiles and Tile Fittings for internal Walls	1. Chemical Resistance for Acids and Alkali	SS 57: 1989 Clause 6.2, 10.2.6 & Appendix H; BS EN ISO 10545-13: 2016 Section E, b) 1)
	2. Stain Resistance	SS 57: 1989 Clause 6.2, 10.2.7 & Appendix H
	3. Resistance to Stain	BS EN ISO 10545: Pt 14: 2015
N Ceramic Wall Tiles	1. Reverse Staining Test on Tiles	CAST/MAT/TM/001-98
O Hot Dip Galvanised Coatings on Iron & Steel Articles	1. Stripping Test for Galvanized Coatings	SS 117:1975 ASTM A90/A90M-13 BS EN ISO 1460:1995
P Clay Masonry / Bricks	1. Active Soluble Salts Content	BS EN 772 - 5 : 2016
Q Concrete	1. Chloride	BS 1881-124:2015
	2. Sulphate	BS 1881-124:2015
	3. Calcium	BS 1881-124:2015
	4. Loss on Ignition	BS 1881-124:2015

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Approved Signatory

1. Mr Pavadai Sathish Kumar – for Sections A to Q
2. Mr Tian Mong Ching – for Sections K to N
3. Ms Jin Yan – for Section A to Q
4. Mr Tam Yun Hong – for Sections F, H, I & J

Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.