AIT
Asian Institute of Technology

School of Engineering and Technology

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EXECTUTIVE SUMMARY

The Structural Engineering Laboratory, School of Engineering and Technology, Asian Institute of Technology (AIT) was engaged by the Saint - Gobain Weber Co.,Ltd., to conduct the performance test of cementitlious grouts. The sample in the trademark of " weber.color HR " was submitted by the Saint - Gobain Weber Co.,Ltd. The series of test were detailed in according with ISO 13007 / European Norms (EN 13888:2009) test methods as follows:

Specification of cementitious grouts (CG)

Fundamental Characteristics			
Characteristic	Requirement	Test Method	Results
Abrasion resistance *	≤ 2 000 mm^3	ISO 13007 part 4 clause 4.4 or EN 12808-2	PASS
Flexural strength under standard conditions *	≥ 2,5 N/mm^2	ISO 13007 part 4 clause 4.1.3 or EN 12808-3	PASS
Compressive strength under standard conditions *	≥ 15 N/mm^2	ISO 13007 part 4 clause 4.1.4 or EN 12808-3	PASS
Shrinkage *	≤ 3 mm/m	ISO 13007 part 4 clause 4.3 or EN 12808-4	PASS
Water absorption after 30 min	≤ 5 g	ISO 13007 part 4 clause 4.2 or EN 12808-5	PASS
Water absorption after 240 min	≤ 10 g	ISO 13007 part 4 clause 4.2 or EN 12808-5	PASS

* Note: The test performed by a manufacturer's laboratory, which uses own test equipment. AIT was witness for this test.

Regarding the testing results, it was found that the properties of " weber.color HR " are conformed to ISO 13007 / European Norms (EN 13888:2009) test methods as specified. These results certify the adequacy and representative character of test samples only.

Reference No: S0182-13

Date of Issue: 18 April 2013

Checked by:

MR. EKKACHAI YOOPRASERTCHAI
RESEARCH ASSOCIATE

Approved by:

DR. PENNUNG WARNITCHAI
LEADER OF CIVIL AND INFRASTRUCTURE ENGINEERING GROUP
May 17, 2013

ASIAN INSTITUTE OF TECHNOLOGY ★ AIT ★ STRUCTURAL ENGINEERING

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STRUCTURAL ENGINEERING LABORATORY

STRUCTURAL ENGINEERING FIELD OF STUDY

SCHOOL OF ENGINEERING AND TECHNOLOGY

TYPE OF TEST: **DETERMINATION OF RESISTANCE TO ABRASION (EN 12808-2)**

TEST SPECIMEN: Three (3) specimens in cubic shape having a nominal size of 100x100x10 mm. were prepared in SE laboratory. The mix proportion of water to " weber color HR " ratio was 20.0 % by weight.

CLIENT: **SAINT - GOBAIN WEBER CO., LTD.**

DATE OF TEST: February 21, 2013

TEST RESULTS:

Specimen	Length Point 1 (mm.)	Length Point 2 (mm.)	Length Point 3 (mm.)	Volume Point 1 (mm^3.)	Volume Point 2 (mm^3.)	Volume Point 3 (mm^3.)
weber color HR	32.50	32.50	33.50	288.00	288.00	316.00

Note: 1) The test performed by a manufacturer's laboratory, which uses own test equipment. AIT was witness for this test.
2) This report certifies the adequacy and representative character of the test sample(s) only.

TESTED BY:

MR. APIRAK POORAT
TECHNICIAN

CHECKED BY:

MR. EKKACHAI YOOPRASERTCHAI
RESEARCH ASSOCIATE

APPROVED BY:

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Doc. No. S0182A-13

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TYPE OF TEST: **COMPRESSIVE STRENGTH TEST (EN 12808-3)**

TEST SPECIMEN: Three (3) cubes having a nominal size of 40x40x40 mm made of " weber color HR " were prepared in SE laboratory. The mix proportion of water to " weber color HR " ratio was 20.0 % by weight.

CLIENT: **SAINT-GOBAIN WEBER CO., LTD.**

DATE OF TEST: February 21, 2013

TEST METHOD: Test the prism halves broken in flexion. Centtre the prism halves laterally to the platens of machine and longitudinally such that the end face of the prism overhangs the platens or auxiliary plates by about 10 mm. Increase the load until fracture.

TEST RESULTS: The compressive strength of specimens at the age of 28 days are shown as follows.

Specimen No.	Date of Cast	Date of Test	Age of Specimen (days)	Cross Sectional Area (mm^2)	Maximum Load (N)	Compressive Strength (N/mm^2)	Remarks
1	24/01/13	21/02/13	28	1,600	45,235	28.27	
2	24/01/13	21/02/13	28	1,600	44,280	27.68	
3	24/01/13	21/02/13	28	1,600	41,492	25.93	
					Average	**27.29**	

Note: 1) This testing machine was calibrated by Calibration Laboratory Co., Ltd, at the date of January 11, 2013

2) This report certifies the adequacy and representative character of the test sample(s) only.

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TYPE OF TEST: **FLEXURAL STRENGTH TEST (EN 12808-3)**

TEST SPECIMEN: Three (3) cubes having a nominal size of 40x40x160 mm made of " weber color HR " were prepared in SE laboratory. The mix proportion of water to " weber color HR " ratio was 20.0 % by weight.

CLIENT: **SAINT-GOBAIN WEBER CO., LTD.**

DATE OF TEST: February 21, 2013

TEST METHOD: Keep the demolded prism in standard conditions for 27 days. After conditioning hass been completed, place the prism in the testing machine. Apply the load until fracture.

TEST RESULTS: The flexural strength of specimens at the age of 28 days are shown as follows.

Specimen No.	Date of Cast	Date of Test	Age of Specimen (days)	Span Length (mm)	Maximum Load (N)	Flexural Strength (N/mm^2)	Remarks
1	24/01/13	21/02/13	28	100	2,600	6.09	
2	24/01/13	21/02/13	28	100	3,000	7.03	
3	24/01/13	21/02/13	28	100	2,300	5.39	
					Average	**6.17**	

Note: 1) This testing machine was calibrated by Calibration Laboratory Co., Ltd, at the date of January 11, 2013
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TYPE OF TEST: **DETERMINATION OF SHRINKAGE (EN 12808-4)**

TEST SPECIMEN: Three (3) specimens in prism shape were prepared in the SE laboratory. The mix proportion of water to " weber color HR " ratio was 20.0 % by weight.

CLIENT: **SAINT - GOBAIN WEBER CO., LTD.**

DATE OF TEST: January 28, 2013 - February 25, 2013

TEST RESULTS: The shrinkage of specimens at the age of 28 days are shown as follows.

Specimen No.	Intial Measurement (mm.)	Final Measurement (mm.)	Drying Shrinkage of specimen (mm./m.)
1	14.24	14.08	1.00
2	15.37	15.10	1.69
3	12.88	12.69	1.19

Note: 1) The test performed by a manufacturer's laboratory, which uses own test equipment. AIT was witness for this test.
2) This report certifies the adequacy and representative character of the test sample(s) only.

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TYPE OF TEST: **WATER ABSORPTION TEST (EN 12808-5)**

TEST SPECIMEN: Three (3) specimens of standard prisms shape made of " weber color HR " were prepared in SE laboratory. ratio was 20.0 % by weight.

CLIENT: **SAINT-GOBAIN WEBER CO., LTD.**

DATE OF TEST: February 21, 2013

TEST RESULTS:

Specimen No.	Weight of Surface-dried Specimen After Immersion 30 min (g)	Weight of Surface-dried Specimen After Immersion 240 min (g)	Weight of the dry Specimen (g)	Water Absorption of Specimen 30 min (g)	Water Absorption of Specimen 240 min (g)
1	442.00	442.20	442.00	0.00	0.20
2	446.00	446.10	446.00	0.00	0.10
3	452.50	452.70	452.30	0.20	0.40
			Average	**0.07**	**0.23**

Note: This report certifies the adequacy and representative character of the test sample(s) only.

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