

TEST REPORT

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ACCOUNTS CHARGEABLE TO : WARRIOR PTE LTD

TESTED FOR : WARRIOR PTE LTD

PROJECT TITLE : HDB WEBSITE MATERIAL LISTING FOR W1

TESTS : 1) SLANT SHEAR BOND STRENGTH
2) TOTAL SOLIDS CONTENT

STANDARD METHODS : 1) ASTM C1042- 99
2) ISO 124: 2014

JOB REFERENCE : AWCS/MAT/24/122
CLIENT SAMPLE REF. : W1 CEMENT STRENGTHENER
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TESTING OF BONDING AGENT

Sample Preparation:

a) Type I

The latex was brushed onto the diagonal face of the hardened half cylinder at the coverage of 5 m²/litre. Within 10 min after applying the bonding agent, a 15 mm thick layer of the freshly mixed mortar was placed over the coated surface and the mortar was consolidated using a tamping rod. Fully filled the mold with mortar and rod ten times.

b) Type II

The cement and latex slurry was prepared by mixing Type I portland cement with the latex (approximately 50 ml of latex to 100 g of cement). The slurry was applied at the diagonal face of the hardened half cylinder. Within 10 min after applying the bonding agent, a 15 mm thick layer of the freshly mixed mortar was placed over the coated surface and the mortar was consolidated using a tamping rod. Fully filled the mold with mortar and rod ten times.

Curing Conditions

a) Type I - 14 d in air (23 ± 2) °C, (50 ± 4) % RH

b) Type II - 7 d in air (23 ± 2) °C, (50 ± 4) % RH + 7 d in saturated lime water

Table 1. Summary of Test Results

NO.	PROPERTIES	HDB'S ACCEPTANCE CRITERIA	RESULT	UNIT
1.	Slant Shear Bond Strength (Type I)	≥ 2.8	2.9	N/mm ²
	Slant Shear Bond Strength (Type II)	≥ 8.7	8.8	N/mm ²
2.	Total Solids Content	Determination of solid content value	44.5	%

Project : HDB WEBSITE MATERIAL LISTING FOR W1
 Client : WARRIOR PTE LTD
 Job Ref. : AWCS/MAT/24/122
 Sample Ref. : W1 CEMENT STRENGTHENER

Test Conditions : (23 ± 2) °C; (50 ± 4) % RH
 Date Received : 05-Apr-24

TEST RESULTS:

1) Slant Shear Bond Strength (ASTM C1042- 99)


Sample Reference		W1 CEMENT STRENGTHENER			
Date of Cast		9-Apr-24			
Date of Test		23-Apr-24			
Type of Latex	Specimen Reference	Specimen 1	Specimen 2	Specimen 3	Average
Type I	Bonding Area, mm ²	9116	9116	9116	-
	Bond Strength, N/mm ²	2.86	2.91	2.99	2.9
	Mode of Failure	C	C	C	
Type II	Bonding Area, mm ²	9116	9116	9116	-
	Bond Strength, N/mm ²	8.98	8.80	8.74	8.8
	Mode of Failure	C	C	C	-

Remarks:

- a) Mode of Failure: C- in the interface between them
- b) Refer to Fig. 2 for mode of failure
- c) Number and total area of void in the bond -
- d) Any defects in the specimen or cap: -

2) Total Solids Content (ISO 124: 2014)

Sample Reference		W1 CEMENT STRENGTHENER		
Date of Test		11-Apr-24		
Drying Method & Temperature Used		Heating at atmospheric pressure at (105 ± 5) °C for 2 h		
Specimen Reference		1	2	3
Total Solids Content, %		44.49	44.60	44.55
Average Total Solids Content, %		44.5		

Prepared by : Tang Bee Kim 
 Designation : Senior Engineer
 Date : 24-Apr-2024

Approved by : David Sun 
 Designation : Technical Director
 Date : 24-Apr-2024



Figure 1. W1 CEMENT STRENGTHENER (sample as per received)



Figure 2a. Type I- Slant Shear Bond Strength (Mode of Failure)



Figure 2b. Type II- Slant Shear Bond Strength (Mode of Failure)