

Test Report No. 7191061185-MEC13/08-ED
dated 4 Jul 2013



PSB Singapore

**Choose certainty.
Add value.**

Note: This report is issued subject to the Testing and Certification Regulations of the TÜV SÜD Group and the General Terms and Conditions of Business of TÜV SÜD PSB Pte Ltd. In addition, this report is governed by the terms set out within this report.

SUBJECT:

Testing of fibre cement board submitted by Visaka Industries Ltd

TESTED FOR:

Visaka Industries Limited
Visaka Towers
1-8-303/69/3, S.P. Road
Secunderabad
A.P. 500003
India

Attn: Mr Jawahar Rawtani

TEST METHOD:

Adopted ASTM C1185 : 2008 (2012) Standard Test Methods For Sampling And Testing Non-Asbestos Fiber-Cement Flat Sheet, Roofing And Siding Shingles, And Clapboards

Section 5 - Flexural Strength (Modulus of Rupture)

Section 12 - Freeze/Thaw - Cladding Products

DESCRIPTION OF SAMPLE:

Fibre Cement Board 'V-Premium'

REMARKS:

1. No cracks, delamination or warpage observed after freeze/thaw.
2. The average values of sample references in two directions and overall average value of two directions are reported as requested by the client.
3. The average ratio value was calculated based on flexural strength after freeze/thaw to control reference from test report 7191061185-MEC13/01-ED (refer to pages 5 and 6 of 7)

Eddie Suwand
Senior Associate Engineer

Eng Aik How
Engineer
Building
Mechanical Centre



Laboratory:
TUV SUD PSB Pte. Ltd.
No. 1 Science Park Drive
Singapore 118221

Phone : +65-6885 1333
Fax : +65-6776 8670
E-mail: testing@tuv-sud-psb.sg
www.tuv-sud-psb.sg
Co. Reg : 199002667R

Regional Head Office:
TUV SUD Asia Pacific Pte. Ltd.
3 Science Park Drive, #04-01/05
The Franklin, Singapore 118223
TUV[®]

Test Report No. 7191061185-MEC13/08-ED
dated 4 Jul 2013



PSB Singapore

TEST RESULTS:

Size : 305 mm x 152 mm

Test condition : Freeze/Thaw 50 cycles

a. Immersion in water at 23°C for 48 hours

b. 1 cycle :

i. -20°C for 2 hours

ii. +20°C for 2 hours

Direction : Parallel

Crosshead speed : 30 mm/min

Sample Reference	1	2	3	4	5	6	7	8	9	10
Maximum Load (N)	184.68	158.95	163.51	155.32	151.27	178.27	151.95	177.17	159.62	161.56
Length of Span (mm)	254									
Width of Specimen (mm)	152.4	152.3	152.1	153.1	153.2	152.7	152.8	152.1	152.7	151.8
Thickness (mm)	7.78	7.76	7.82	7.53	7.52	7.74	7.83	7.84	7.74	7.56
Flexural Strength (MPa)	7.63	6.60	6.70	6.82	6.65	7.42	6.18	7.22	6.65	7.10
Average Flexural Strength (MPa)	6.90									
Ratio (R)	1.09									

Ed *E*

Test Report No. 7191061185-MEC13/08-ED
dated 4 Jul 2013



PSB Singapore

TEST RESULTS:

Direction : Perpendicular
Crosshead speed : 30 mm/min

Sample Reference	1	2	3	4	5	6	7	8	9	10
Maximum Load (N)	214.04	250.40	284.15	275.63	226.44	240.96	215.39	219.44	285.42	224.0
Length of Span (mm)	254									
Width of Specimen (mm)	151.8	151.1	151.2	152.8	150.7	151.1	153.1	152.7	151.5	153.1
Thickness (mm)	7.56	7.66	7.53	7.78	7.68	7.70	7.55	7.61	7.82	7.46
Flexural Strength (MPa)	9.40	10.76	12.63	11.35	9.71	10.25	9.40	9.45	11.74	10.02
Average Flexural Strength (MPa)	10.47									
Ratio (R)	0.93									
Average Flexural Strength, two directions (MPa)							8.68			
Average Ratio, two directions (R)							1.01			

Ed *E*

Test Report No. 7191061185-MEC13/08-ED
dated 4 Jul 2013



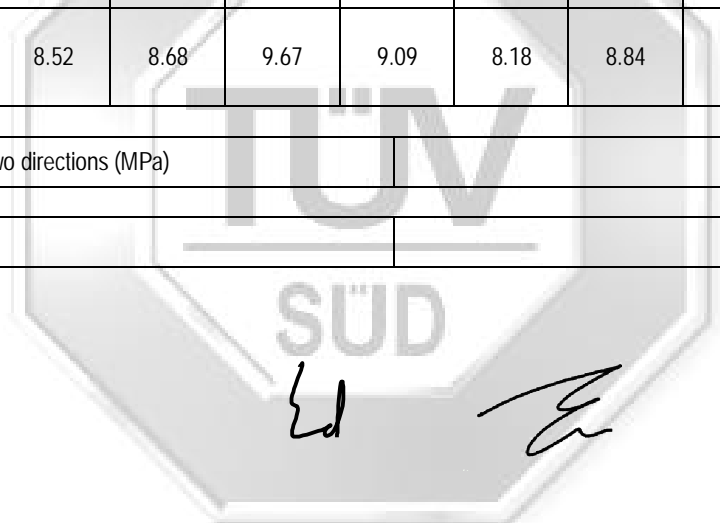
PSB Singapore

TEST RESULTS:

Sample Reference, Parallel	1	2	3	4	5	6	7	8	9	10
Flexural Strength (MPa)	7.63	6.60	6.70	6.82	6.65	7.42	6.18	7.22	6.65	7.10
Sample Reference, Perpendicular	1	2	3	4	5	6	7	8	9	10
Flexural Strength (MPa)	9.40	10.76	12.63	11.35	9.71	10.25	9.40	9.45	11.74	10.02
Average Flexural Strength of Sample Reference, two directions (MPa)	8.52	8.68	9.67	9.09	8.18	8.84	7.79	8.34	9.20	8.56

Overall Average Flexural Strength, two directions (MPa)	8.68
---	------

Average Ratio (R)	0.99
-------------------	------



Test Report No. 7191061185-MEC13/08-ED
dated 4 Jul 2013



PSB Singapore

TEST RESULTS:

Size : 305 mm x 152 mm

Direction : Parallel
Crosshead speed : 50 mm/min

Sample Reference	1	2	3	4	5	6	7	8	9	10
Maximum Load (N)	248.98	232.95	235.15	238.27	237.76	239.20	224.25	204.59	211.26	228.13
Length of Span (mm)	254									
Width of Specimen (mm)	152	152	152	152	152	152	152	152	152	152
Thickness (mm)	9.54	9.72	9.65	9.70	9.64	9.60	9.62	9.22	9.12	9.29
Flexural Strength (MPa)	6.86	6.18	6.33	6.35	6.41	6.51	6.07	6.03	6.37	6.63
Average Flexural Strength (MPa)	6.37									

Direction : Perpendicular
Crosshead speed : 50 mm/min

Sample Reference	1	2	3	4	5	6	7	8	9	10
Maximum Load (N)	434.94	444.98	444.89	435.61	443.71	439.49	313.43	302.88	301.45	327.35
Length of Span (mm)	254									
Width of Specimen (mm)	152	152	152	152	152	152	152	152	152	152
Thickness (mm)	9.84	9.72	9.63	9.60	9.75	9.71	8.72	8.66	8.22	8.80
Flexural Strength (MPa)	11.26	11.81	12.02	11.85	11.70	11.68	10.33	10.12	11.18	10.60
Average Flexural Strength (MPa)	11.26									

Average Flexural Strength, two directions (MPa)	8.81
---	------

Test Report No. 7191061185-MEC13/08-ED
 dated 4 Jul 2013



PSB Singapore

TEST RESULTS:

Sample Reference, Parallel	1	2	3	4	5	6	7	8	9	10
Flexural Strength (MPa)	6.86	6.18	6.33	6.35	6.41	6.51	6.07	6.03	6.37	6.63
Sample Reference, Perpendicular	1	2	3	4	5	6	7	8	9	10
Flexural Strength (MPa)	11.26	11.81	12.02	11.85	11.70	11.68	10.33	10.12	11.18	10.60
Average Flexural Strength of Sample Reference, two directions (MPa)	9.06	9.00	9.18	9.10	9.06	9.10	8.20	8.08	8.78	8.62
Overall Average Flexural Strength, two directions (MPa)							8.81			

Ed

Please note that this Report is issued under the following terms :

1. This report applies to the sample of the specific product/equipment given at the time of its testing/calibration. The results are not used to indicate or imply that they are applicable to other similar items. In addition, such results must not be used to indicate or imply that TÜV SÜD PSB approves, recommends or endorses the manufacturer, supplier or user of such product/equipment, or that TÜV SÜD PSB in any way "guarantees" the later performance of the product/equipment. Unless otherwise stated in this report, no tests were conducted to determine long term effects of using the specific product/equipment.
2. The sample/s mentioned in this report is/are submitted/supplied/manufactured by the Client. TÜV SÜD PSB therefore assumes no responsibility for the accuracy of information on the brand name, model number, origin of manufacture, consignment or any information supplied.
3. Nothing in this report shall be interpreted to mean that TÜV SÜD PSB has verified or ascertained any endorsement or marks from any other testing authority or bodies that may be found on that sample.
4. This report shall not be reproduced wholly or in parts and no reference shall be made by the Client to TÜV SÜD PSB or to the report or results furnished by TÜV SÜD PSB in any advertisements or sales promotion.
5. Unless otherwise stated, the tests were carried out in TÜV SÜD PSB Pte Ltd, No.1 Science Park Drive Singapore 118221.

July 2011

