

Results:**Table 1 : Summary of Test Results on Physical and Mechanical Properties to ISO TR 1896 : 1991 / ASTM C1185**(Test Results on Material Property are attached)

S/N	Type of Test	Clause, Methods	Sample Sizes	Besta MgO Board (16 mm thick)
1	Density	Cl.6.3, ISO TR 1896	60 x 40 x 16 mm	1030 Kg /m <sup>3</sup>
2	Bending Strength (Dry and Saturated)	Cl.6.4, ISO TR 1896	250 x 250 x 16 mm	10.1 N/mm <sup>2</sup> (Dry); 9.5 N/mm <sup>2</sup> (Saturated)
3	Linear Thermal Shrinkage	Cl.6.7, ISO TR 1896	35 x 35 x 16 mm	-2.2%, -0.1%, 0.5%, 1.7% and 2.3%
4	Moisture Movement	Cl.8, ASTM C 1185	305 x 76 x 16 mm	0.211%
5	Water Absorption	Cl.9, ASTM C 1185	100 x 100 x 16 mm	21.6%
6	Moisture Content	Cl.10, ASTM C 1185	152 x 76 x 16 mm	7.5%
7	Water Tightness	Cl.11, ASTM C 1185	610 x 508 x 16 mm	No sign of water droplet or dampness formed on the bottom surface of all test specimens was observed after 24hours.

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Table 2: Density Test

Sample Reference	"BESTA" MgO board (16mm thick)				
	1	2	3	4	5
Date of test	13/11/2008				
Dimension of cut specimen (mm)	60 x 40 x 16mm				
Measured length (mm)	60.5	60.4	60.4	60.5	60.4
Measured width (mm)	40.7	40.7	40.4	40.6	40.8
Measured thickness (mm)	15.3	15.4	15.4	15.3	15.4
Net dry density (kg/m <sup>3</sup> )	1030	1020	1030	1020	1040
Mean net dry density (kg/m <sup>3</sup> )	1030				

Results:

Table 3: Bending Strength (Dry and Saturated) Test

Sample Reference	"BESTA" MgO board (16mm thick)							
	Dry strength				Saturated strength			
	1	2	3	4	5	6	7	8
Date of Test	10/11/08							
Dimension of cut specimen (mm)	250 x 250 x 16 mm (thick)							
Distance between supports (mm)	215							
Measured length (mm)	249.8	249.8	249.6	249.4	249.4	249.3	249.6	250.0
Measured width (mm)	249.9	249.8	249.5	249.7	249.3	249.4	249.5	249.8
Thickness measured along the line of fracture - 1st break (mm)	15.3	15.4	15.4	15.5	15.3	15.4	15.4	15.4
Thickness measured along the line of fracture - 2nd break (mm)	15.8	16.0	15.7	15.7	15.5	15.9	15.7	15.5
Mass of specimen after oven dried (g)	1046.0	1044.3	1038.0	1043.9	1034.1	1038.7	1048.3	1053.6
Mass of specimen after immersed in water for 24 hrs prior to test - Oven Dry (g)	-	-	-	-	1243.9	1263.6	1269.5	1255.3
Date of Test	13/11/2008				14/11/2008			
Breaking load -1st break (N)	2086	2288	2049	2218	1916	1864	1870	1943
Breaking load - 2nd break (N)	1540	1340	1525	2018	1763	1609	1663	1524
Bending strength - 1st break (N/mm <sup>2</sup> )	11.5	12.5	11.2	12.0	10.5	10.2	10.2	10.5
Bending strength - 2nd break (N/mm <sup>2</sup> )	7.9	6.7	8.0	10.6	9.4	8.2	8.7	8.2
Mean bending strength (N/mm <sup>2</sup> )	10.1				9.5			




Results:

Table 4: Linear Thermal Shrinkage Test

Samples Reference	"BESTA" MgO board (16mm thick)				
	1	2	3	4	5
Dimension of cut specimens (mm)	35 x 35 x 16mm				
Date of Test	21/11/2008				
Temperature of furnace for 4 hrs at test	950 °C				
Linear thermal shrinkage %	-2.2	-0.1	0.5	1.7	2.3
Remarks	Crack (See photo 13 Attached)				

Results:

Table 5: Moisture Movement (Linear Change ) Test

Sample Reference	"BESTA" MgO board (16mm thick)			
	1	2	3	4
Date of Test	10/11/2008			
Dimension of cut specimens (mm)	305 x 76 x 16 mm			
Length (mm)	305.0	305.1	305.3	305.3
Width (mm)	76.4	76.3	76.3	76.6
Thickness (mm)	15.5	15.3	15.4	15.4
Measurement of specimen after condition at R.H 30%	24.071	24.082	24.297	24.228
Measurement of specimen after condition at R.H 90%	24.135	24.135	24.345	24.266
Linear change %	0.268	0.222	0.198	0.155
Average Linear Change %	0.211			

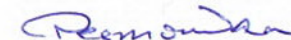



Results:Table 6: Water Absorption Test

Sample Reference	"BESTA" MgO board (16mm thick)									
	1	2	3	4	5	6	7	8	9	10
Date of test	10/11/2008									
Dimension of cut specimens (mm)	100 x 100 x 16									
Length (mm)	100.4	100.6	100.5	100.5	100.5	100.4	100.4	100.5	100.3	100.3
Width (mm)	100.3	100.4	100.5	100.4	100.3	100.4	100.4	100.3	100.4	100.3
Water absorption by mass (%)	21.6	21.1	22.3	22.0	22.4	20.6	21.0	21.3	22.0	21.7
Average water absorption by mass (%)	21.6									

Results:Table 7: Moisture Content Test

Sample Reference	"BESTA" MgO board (16mm thick)				
	1	2	3	4	5
Date of Test	10/11/2008				
Dimension of cut specimens (mm)	152 x 76 x 16				
Length (mm)	152.2	152.2	152.1	152.2	152.4
Width (mm)	77.6	77.1	76.9	77.1	77.4
Thickness (mm)	15.3	15.6	15.8	15.5	15.4
Moisture content (%)	7.3	7.9	7.4	7.5	7.3
Average moisture content (%)	7.5				

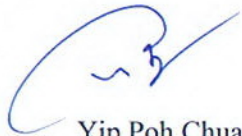
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Table 8: Water Tightness Test



Sample Reference	"BESTA" MgO board		
	1	2	3
Date of test	18/11/2008		
Dimension of cut specimens (mm)	610 x 508 x 16		
Height of clean water above prepared test specimens (mm)	50		
Observation	No sign of water droplet or dampness formed on the bottom surface of all test specimens was observed after 24hours.(See photographs 3, 4 & 5)		



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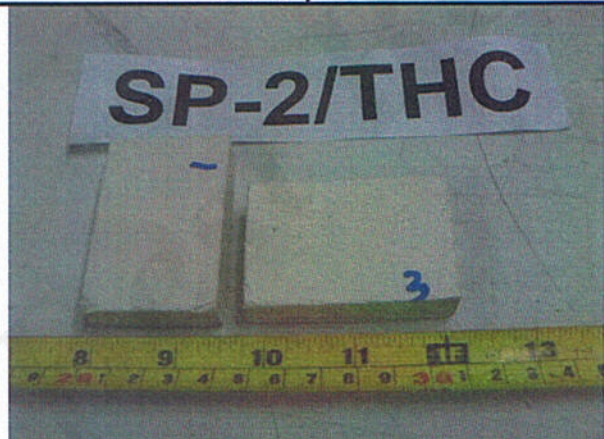
<p style="text-align: center;"><b>Photo 1.</b></p> 	<p>One box of "BESTA" Magnesium Oxide (MgO) boards sample submitted by Best Rock Building Systems Pte Ltd on 03/11 /2008.</p>
<p style="text-align: center;"><b>Photo 2.</b></p> 	<p>"BESTA" Magnesium Oxide (MgO) boards of thickness 16mm, cut to the required size were received on 03/11/2008.</p>
<p style="text-align: center;"><b>Photo 3.</b></p> 	<p>Physical and Mechanical Properties - Water-tightness test in progress:</p> <p>MgO boards of 16mm thick cut specimens - 22 inch x 18 inch (559mm x 457mm). Water height of 2 in (50mm) maintained above the top surfaces at <math>23 \pm 2^\circ\text{C}</math> and <math>50 \pm 5\%</math> relative humidity for the 24 hours test.</p>




<p>Photo 4.</p>	<p>Physical and Mechanical Properties - Water-tightness test.</p> <p>Test in progress: After 24 hours, no sign of water droplet or dampness on the underside of test specimens was observed.</p>
<p>.Photo 5.</p>	<p>Physical and Mechanical Properties in the lab for water tightness test.</p> <p>Photo shows the underside of the specimens No apparent defect was observed of all the three test specimens at the conclusion of water-tightness test after 24 hours.</p>
<p>Photo 6.</p>	<p>Physical and Mechanical Properties – Moisture Movement test.</p> <p>Cut test specimens of 305 x 76mm x 16mm MgO board.</p>






<p>Photo 7.</p>	
	<p>Physical and Mechanical Properties – Moisture Content test.</p> <p>Cut test specimens of 152 x 76mm x 16mm MgO board.</p>
<p>Photo 8.</p>	
	<p>Physical and Mechanical Properties – Water Absorption test.</p> <p>Cut test specimens of 100 x 100 x 16mm MgO board.</p>
<p>Photo 9.</p>	
	<p>Physical and Mechanical Properties – Density.</p> <p>Cut test specimens of 60 x 40mm x 16mm MgO.</p>



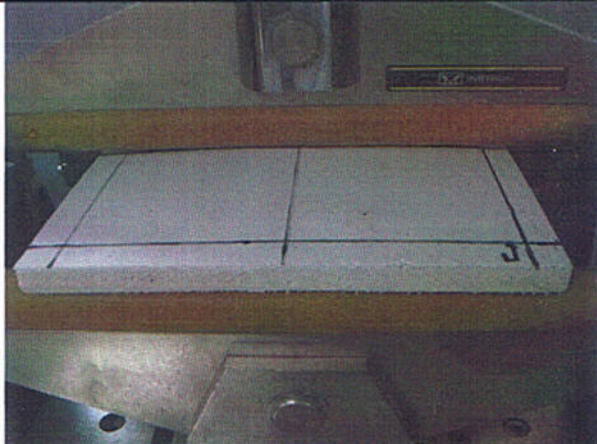




<p style="text-align: center;"><b>Photo 10.</b></p> 	<p>Physical and Mechanical Properties – Bending Strength test.</p> <p>Photo shows the cut test specimen after conditioning and subjected to bending load supported at a span of 215mm.</p>
<p style="text-align: center;"><b>Photo 11.</b></p> 	<p>Physical and Mechanical Properties – Bending Strength test.</p> <p>After 1<sup>st</sup> break, the fractured test specimens were assembled for a second bending test along an axis perpendicular to that used in the 1st test.</p>
<p style="text-align: center;"><b>Photo 12.</b></p> 	<p>Physical and Mechanical Properties – Linear Thermal shrinkage test.</p> <p>Cut test specimens of 35 x 35mm x 16mm MgO.</p>




Photo	13.	
		<p data-bbox="869 304 1364 376">Physical and Mechanical Properties – Linear Thermal shrinkage test .</p> <p data-bbox="869 416 1390 521">Photo shows cracks on the tested specimens of 35 x 35mm x 16mm MgO after 4 hours in furnace at 950 °C.</p>



Best Rock Pte Ltd