



PRODUCT TESTING SERVICE

100 Clemson Research Blvd. • Anderson, SC 29625 • Tel (864) 646-TILE • Fax (864) 646-2821
TCNA TEST REPORT NUMBER: TCNA-095-08 PAGE: 1 OF 1

TEST REQUESTED BY:

Marmol Compac S.A.
Attn: Maria Ferrer
Ctra. Almansa km 96,3
Real de Gandia Valencia
46727 Spain

TEST SUBJECT MATERIAL:

Identified by client as: Classic Line - Marmol

TEST DATE:

3/10/08-3/12/08

TEST PROCEDURE:

ASTM C97: "Absorption and Bulk Specific Gravity of Dimension Stone"

Three 3" x 3" x 3" specimens were dried in an oven for 48 hours. A dry weight was recorded for each specimen, and they were then submerged in water for an additional 48 hours. A wet weight was recorded, and a weight percent absorption was determined. A suspended weight was then recorded for each saturated specimen, and a bulk specific gravity was determined.

TEST RESULTS:

The average weight percent absorption of the three specimens was 0.15%. The individual results are as follows:

Specimen 1: 0.16%
Specimen 2: 0.14%
Specimen 3: 0.13%

The average bulk specific gravity of the three specimens was 2.56. The individual results are as follows:

Specimen 1: 2.57
Specimen 2: 2.51
Specimen 3: 2.61

[The ASTM C503 specification for marble gives a maximum absorption requirement of 0.2%, and a minimum bulk specific gravity requirement of 2.60(calcite) and 2.80 (Dolomite)]

Katelyn Simpson
Laboratory Engineer

4/1/08
Date



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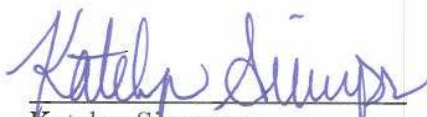
TEST DATE: 3/4/08-3/6/08

TEST PROCEDURE: ASTM C99: "Modulus of Rupture of Dimension Stone"
-Five of ten 8" x 4" x 2.25" specimens were dried in an oven for 48 hours. The remaining five were submerged in water for 48 hours.
- All ten specimens (five wet and five dry) were broken by a three-point load on an Instron universal tester.

TEST RESULTS: The average modulus of rupture of the five specimens in a dry condition was **1706 psi**. The individual results were:
Specimen 1: 1858 psi
Specimen 2: 1722 psi
Specimen 3: 1552 psi
Specimen 4: 1603 psi
Specimen 5: 1793 psi

The average modulus of rupture of the five specimens in a wet condition was **1624 psi**. The individual results were:
Specimen 1: 2140 psi
Specimen 2: 1497 psi
Specimen 3: 1013 psi
Specimen 4: 1464 psi
Specimen 5: 2004 psi

[The ASTM C503 specification for marble gives a minimum modulus of rupture of 1000 psi]


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Testing Services: testing@tileusa.com • Literature Orders: literature@tileusa.com • Web Site: www.tileusa.com

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Identified by client as: Classic Line - Marmol

TEST DATE:

3/24/08

TEST PROCEDURE:

ASTM C880: "Flexural Strength of Dimension Stone"
-Five of ten 14" x 4"x 1.75" specimens were dried in an oven for 48 hours. The remaining five were submerged in water for 48 hours.
-All ten specimens (five wet and five dry) were broken by a four point load on a Satec universal tester.

TEST RESULTS:

The average flexural strength of the five specimens in a dry condition was **856 psi**, with a standard deviation of 470. The individual results are as follows:

Specimen 1: 136 psi *
Specimen 2: 888 psi
Specimen 3: 935 psi
Specimen 4: 1278 psi
Specimen 5: 322 psi

The average flexural strength of the five specimens in a wet condition was **1143 psi**, with a standard deviation of 490. The individual results are as follows:

Specimen 1: 80 psi *
Specimen 2: 1185 psi
Specimen 3: 1045 psi
Specimen 4: 1315 psi
Specimen 5: 1028 psi

[The ASTM C503 specification for marble gives a minimum flexural strength of 1000 psi.]

* Both specimen #1 were removed because they were considered outliers. The averages only include specimens #2- #5.

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TEST DATE:

3/10/08-3/14/08

TEST PROCEDURE:

ASTM C1353: "Abrasion Resistance of Dimension Stone by the Taber Abrader"

Three 4" x 4" x 3/8" specimens were dried in an oven for 48 hours. A dry weight was recorded for each specimen, and they were then submerged in water for an additional 48 hours. A wet weight and suspended weight was recorded, and a bulk density was determined. The specimens were then dried for an additional 48 hours. A second dry weight was recorded, and each specimen was placed on the Taber Abraser for 1,000 revolutions. A final abraded weight was recorded, and an index of abrasion resistance was determined.

TEST RESULTS:

The average index of abrasion (I_w) resistance of the three specimens was **59.25**. The individual results for index of abrasion resistance are as follows:

Specimen 1: **50.73**
Specimen 2: **82.15**
Specimen 3: **44.88**

The relative humidity of the test area was: 31%

[The ASTM C615 specification for granite gives a minimum abrasive hardness value (H_A) requirement of 25.

Note: I_w and H_A are similar values for marble and limestone, but not for granite. ASTM C615 states:

"committee C-18 is actively studying alternatives to address this issue."]

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TEST DATE: 3/4/08-3/6/08

TEST PROCEDURE: ASTM C170: "Compressive Strength of Dimension Stone"
-Five of ten of the cube-cut specimens were dried in an oven for 48 hours. The remaining five were submerged in water for 48 hours.
-All ten specimens (five wet and five dry) were compressed on the Instron universal tester until failure.

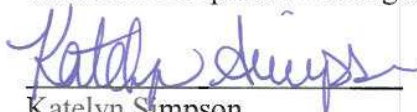
TEST RESULTS: The average compressive strength of the five specimens in a dry condition was 11,445 psi. The individual results are as follows:

Specimen 1: 13,273 psi
Specimen 2: 10,901 psi
Specimen 3: 13,273 psi
Specimen 4: 5127 psi
Specimen 5: 14,651 psi

The average compressive strength of the five specimens in a wet condition was 13,818 psi. The individual results are as follows:

Specimen 1: 15,609 psi
Specimen 2: 14,928 psi
Specimen 3: 12,835 psi
Specimen 4: 11,290 psi
Specimen 5: 14,427 psi

[The ASTM C503 specification for marble gives a minimum compressive strength of 7500 psi]


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3/12/08

TEST PROCEDURE:

ASTM C1028: "Standard Test Method for Determining the Static Coefficient of Friction of Ceramic Tile and Other Like Surfaces by the Horizontal Dynamometer Pull-Meter Method"

-A Chatillon DFIS 100 digital force gauge was used to measure each pull in pounds-force.

-A 3 x 3 x 1/8-inch piece of Neolite was used as the sensor.

TEST RESULTS:

The average static coefficient of friction of four (4) pulls on each tile was as follows:

	<u>As Received</u>	<u>After Cleaning</u>
Tile 1: <u>Dry:</u>	<u>0.77</u>	<u>0.77</u>
<u>Wet:</u>	<u>0.56</u>	<u>0.56</u>
Tile 2: <u>Dry:</u>	<u>0.75</u>	<u>0.77</u>
<u>Wet:</u>	<u>0.56</u>	<u>0.54</u>
Tile 3: <u>Dry:</u>	<u>0.75</u>	<u>0.76</u>
<u>Wet:</u>	<u>0.55</u>	<u>0.56</u>

The average static coefficient of friction of twelve (12) pulls was as follows:

<u>Dry:</u>	<u>0.76</u>	<u>0.77</u>
<u>Wet:</u>	<u>0.55</u>	<u>0.55</u>

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