TEST REPORT

NB2685_CPR_136_2024_ENG

CUSTOMER[#]

TERRASTONE SH.P.K

PRODUCT NAME[#]

Calacatta Pearl, Ameba Beige and Imperador Beige

TYPE OF PRODUCT

Natural Stones (cladding slabs hEN 1469)

TYPE OF TEST

DETERMINATION OF FLEXURAL STRENGTH UNDER CONCENTRATED LOAD (EN 12372)

Ordering TERRASTONE SH.P.K
Product placed on the market from[#] TERRASTONE SH.P.K - RR. BEDRI BERISHA, OBJEKTI B, LOKALI#1 - 10000 PRISHTINE - KOSOVO
Data related to the sample examined 10 samples of dimensions 300 mm x 50 mm x 50 mm
Sample origin sampled and provided by the Customer
Manufacturing plant[#] RR. ARDIANET - MILLOSHEVE - 15000 KASTRIOT - KOSOVO

Estimate 24037/CPR dated 30th Sep 2024
Order confirmation 24038/CPR of 1th Oct 2024
Receipt of the samples and DDT number 15th Oct 2024 - d.d.t. n. 24-10-01 of 4th Oct 2024
Test execution 11st November 2024 - 21st November 2024
Laboratory and location of test execution Certimac - via Ravegnana, 186 - Faenza (RA) - ITALY

Report issued 12/23/2024
Revision n° 00

Test executed by: I.E. Marco Chiari
Report drafted by: Eng. M. Morganti
Approval: Technical director Eng. L. Laghi

This test report is part of a file in PDF format digitally signed by Luca Laghi

Chief Technical Officer
(Eng. Luca Laghi)

1. Object of the test

This test report reports the results of the following tests:

- *Determination of flexural strength under concentrated load.*

Carried out on the following type of product:

- *Natural Stones (Cladding Slabs according to EN 1469) named "Calacatta Pearl, Ameba Beige and Imperador Beige."*

Which was received in the laboratory in the form of:

- *10 samples of 300 mm x 50 mm x 50 mm.*

The results obtained refer only to the sample under test, as taken by the Manufacturer and received, and are valid only under the conditions under which the test was carried out. It is the responsibility of the Manufacturer to adhere to the frequency of testing established by current regulations. If the Manufacturer requests testing of a sample while acknowledging a deviation from the conditions specified at the time of acceptance, Certimac disclaims any responsibility for results that may be affected by such deviation.

In the absence of more detailed information, the tested samples were considered **isotropic**.

2. Reference standards and documents

The tests have been executed according to the methods defined in the following documentation and reference standards:

a. EN 12372:2022 Natural stone test methods - Determination of flexural strength under concentrated load
b. hEN 1469:2015 Natural stone products - Slabs for cladding - Requirements

3. Test apparatus, environmental conditions and measurement uncertainty

Test apparatus and certificate of calibration	MTS single-axis testing machine, model 30/M, serial no. 273305/05, equipped with load cell with full scale of 20 kN. Calibration certificates No. LAT 052 2416560FSE (load), LAT 052 2416562FSE (stroke), LAT 052 2416563FSE (speed), issued by LAT Calibration Centre No. 52 dated 29/10/2024.
Environmental conditions	Temperature: 23±2°C Relative humidity : 50±10%.
Measurement uncertainty	Calculated (Ref. 2-a)

4. Results of the test

The test was performed as prescribed in the standard in Ref. 2-a, which establishes methods for determining flexural strength and minimum characteristics of testing machines.

As specified above, the test was carried out after drying of the specimens.

The application of the load involves the total absence of impact and a constant load application rate of between 0.20 and 0.30 MPa/s until failure occurs. In order to ensure compliance with these requirements, it was appropriate, operating under stroke control, to set a piston lowering speed of 0.5 mm/min.

Based on the parameters described and thus set, the Flexural Strength Rtf (MPa) was determined as follows:

$$R_{tf} = \frac{3Fl}{2bh^2}$$

Dove:

- F = Carico massimo applicato (N);

- l = Distanza tra i rulli di appoggio (150 mm, cioè 5 volte lo spessore dei provini così come richiesto dalla norma di Rif. 2-a) (mm);

- b, h = Larghezza e spessore del provino (sezione trasversale), misurate in adiacenza al piano di frattura.

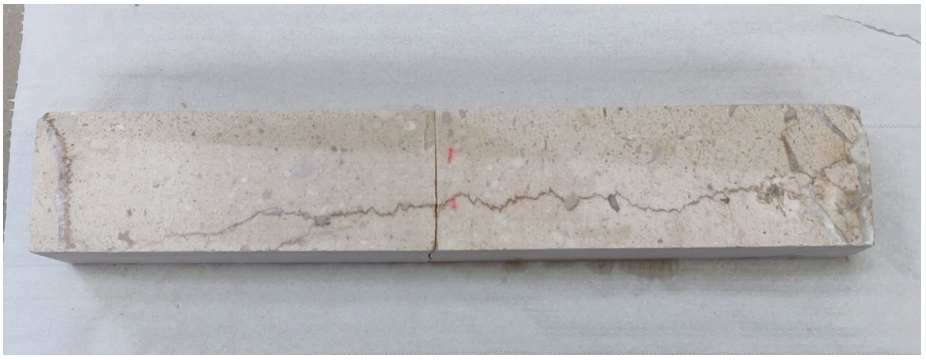


Figure 1. Representation of a specimen after the flexural strength test

Below is the table with the results:

Sample	measures dimensions		Thickness h (mm)	Support roller distance L (mm)	tensile strength F (N)	Flexural strength Rtf (MPa) ± U (Rtf)
	L1 (mm)	L2 (mm)				
1	299.8	50.1	50.2	260.0	2602.0	8.0
2	300.0	49.8	52.0	260.0	5040.8	14.6
3	299.7	50.9	51.6	260.0	2112.1	6.0
4	299.8	49.9	51.7	260.0	2589.5	7.6
5	300.0	51.2	53.4	260.0	5363.6	14.6
6	300.2	51.2	52.7	260.0	4445.7	12.3
7	300.1	50.7	51.9	260.0	5228.1	15.1
8	300.1	51.2	52.4	260.0	5034.2	14.0
9	299.7	51.4	51.7	260.0	2949.1	8.4
10	300.0	50.0	52.2	260.0	5510.8	15.8
Mean	**300.0**	**50.5**	**52.1**	**260.0**	**4084.8**	**11.6**
Standard deviation	**0.2**	**0.6**	**0.9**	**0**	**1286.0**	**3.5**
Lowest expected value	**/**	**/**	**/**	**/**	**/**	**6.2**

Table 1. Results measurement of bending strength under concentrated load

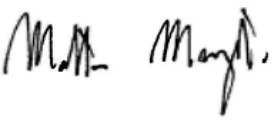
SUMMARY OF RESULTS

The tests previously described gave the following results:

Determination of bending strength under concentrated load according to EN 12372:2022	
Average value of bending strength under concentrated load / MPa	**11.6 ± 3.5 MPa**

4. List of distribution

ENEA	Archive	1 copy
Certimac	Archive	1 copy
TERRASTONE SH.P.K	Archive	1 copy

In charge of technical test execution	**In charge of technical report drafting**	**Technical director Approval**
P. I. Marco Chiari	Eng. Mattia Morganti	Eng. Luca Laghi
		

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