

**MODENA CENTRO PROVE s.r.l.**

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C.C.I.A.A. Modena n. 228587 - Tribunale di Modena n° 2231 - C.F. e P. IVA n. 01592020364

MECCANICA

ECOLOGIA

CERAMICA

ALIMENTARE

Modena, 29/10/18

To **REFIN CERAMICHE SPA**  
VIA I MAGGIO NR. 22 FRAZ.  
SALVATERRA  
42013 CASALGRANDE RE

Attn.

MATERIAL and/or SAMPLE to be tested	Denomination of the Sample	Client Reference – Your delivery	date
porcelain tiles	TUNE OUT 2 LAVA R.	-	16/10/2018

Here attached, you will receive the Test Report of Serial No. **20187118**/n, which shows the results of tests required.

**MODENA CENTRO PROVE**

MODENA CENTRO PROVE  
  
Director  
Sant'Unione dr. Giuseppe

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LAB N°1018L

Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC

Signatory of EA, IAF and ILAC Mutual Recognition Agreements

**TEST REPORT: 20187118/1**

Modena, 29/10/18

**CUSTOMER****REFIN CERAMICHE SPA - - VIA I MAGGIO NR. 22 FRAZ. SALVATERRA - 42013 - CASALGRANDE - RE****MATERIAL and/o SAMPLE to be tested**

porcelain tiles;

**Denomination**

TUNE OUT 2 LAVA R.;

**Date of sample reception**

16/10/2018;

**Date of sample acceptance**

16/10/2018;

**Kind of test executed**

Determination of Modulus of rupture and Breaking strenght

**Referring standards**

UNI EN ISO 10545-4:2014/EC 1-2015

**Shifting from standards**

No one

**Equipment**

Flexural test machine cod. MCP C152 - Gauge cod. MCP C145 - Metric band-mill cod. MCP C56

**Subcontracted phases**

No one

**Sampling made by**

Customer

*The test results showing in this Report are only referred to the sample taken by our staff or supplied by the Customer. He commits himself to reproduce integrally this document. Partial reproduction is forbidden.  
The times of retain of the samples was indicated in the offer related to the test report.*

**Examiner**

p.i. Bortolai Alberto

MODENA CENTRO PROVE

Ceramic Dept. Responsible  
P.I. De Pasquale Roberto

MODENA CENTRO PROVE

Director  
Sant'Unione dr. Giuseppe



## DETERMINATION OF MODULUS OF RUPTURE AND BREAKING STRENGTH

Beginning date : 23/10/2018

Analysis ending date : 24/10/2018

**SAMPLE** : Ceramic tiles, marked « **TUNE OUT 2 LAVA R.** »

The test has been performed applying a load on three points, with the central load to contact with the centre line of the does superior of the tile.

### RESULTS

**The test has been performed on entire samples**

Width of the test specimen <b>b</b>	900	mm
Dimension of tile <b>L</b>	900	mm
Diameter of rod <b>d</b>	20	mm
Thickness of rubber <b>t</b>	5	mm
Overlap of tile beyond the edge supports <b>l<sub>1</sub></b>	10	mm

PARAMETER	Unit of measure	Tile n°						
		1	2	3	4	5	6	7
Span between the support rods <b>l<sub>2</sub></b>	mm	880	880	880	880	880	880	880
Width of the test specimen <b>b</b>	mm	900	900	900	900	900	900	900
Minimum thickness of the specimen <b>h</b>	mm	18,8	19,1	18,9	18,9	19,0	18,9	18,9
Breaking load <b>F</b>	N	11348	12826	11678	12143	12068	11720	12390
Breaking strength <b>S</b>	N	11096	12541	11418	11873	11800	11460	12115
Modulus of rupture <b>R</b>	N/mm <sup>2</sup>	47,1	51,6	47,9	49,9	49,0	48,1	50,9

Breaking load <b>F</b> average value (N)	=	12025
Breaking strength <b>S</b> average value (N)	=	11757
Modulus of rupture <b>R</b> average value (N/mm <sup>2</sup> )	=	49,2

### REQUIREMENTS UNI EN 14411:2016

GROUP: Bla  
 UNI EN 14411:2016 Annex: G

	THICKNESS	REQUIREMENT
<b>BREAKING STRENGTH</b>	Thickness ≥ 7,5 mm	> 1300 N
	Thickness < 7,5 mm	> 700 N

		REQUIREMENT
<b>MODULUS OF RUPTURE*</b>	Average value	> 35 N/mm <sup>2</sup>
	Individual value	> 32 N/mm <sup>2</sup>

(\* ) Not applicable to ceramic tiles with breaking strenght > 3000 N

 Examiner p.i. Bortolai Alberto	 MODENA CENTRO PROVE Ceramic Dept. Responsible P.I. De Pasquale Roberto	 MODENA CENTRO PROVE Director Sant'Unione dr. Giuseppe
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