

TEST REPORT No. 278551

Place and date of issue: Bellaria-Igea Marina - Italy, 01/02/2011

Customer: C. & P. COSTRUZIONI S.r.l. - Via d'Este, 5/7-5/8 - 42028 POVIGLIO (RE) - Italy

Date test requested: 21/09/2010

Order number and date: 50441, 30/09/2010

Date sample received: 26/10/2010

Test date: from 01/11/2010 to 25/01/2011

Purpose of test: determination of freeze/thaw resistance of wood-chip concrete shuttering blocks in accordance with standard UNI EN 15498:2008

Test site: Istituto Giordano S.p.A. - Blocco 8 - Via del Lavoro, 1 - 47814 Bellaria-Igea Marina (RN) - Italy

Sample origin: sampled and supplied by the Customer

Identification of sample received: No. 2010/2389

Description of sample*

The test specimens are 15 cm cubes produced from a mix of cement and wood chips used to make shuttering blocks.

Normative References

The test was carried out in accordance with the requirements of the following standards:

- UNI EN 15498:2008 dated 11/09/2008 "Precast concrete products. Wood-chip concrete shuttering blocks - Product properties and performance";
- UNI EN 14474:2005 dated 30/04/2005 "Precast concrete products. Concrete with wood chips as aggregate. Requirements and test methods".

(*) according to that stated by the Customer.

Comp. AV
Revis. GF

This test report consists of 3 sheets.
This document is the English translation of the test report No. 278551 dated 01/02/2011 issued in Italian; in case of dispute the only valid version is the Italian one. Date of translation: 26/06/2015.

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Test method

The test involves subjecting the specimens to a series of freeze-thaw cycles by immersing in water and freezing in air in order to check that the loss of mass (LM) is less than 10 %.

At the Customer's request, the frost resistance test was performed using a solution of distilled water on specimens 1, 2 and 3 and an aqueous solution of 3 % sodium chloride (NaCl) on specimens 4, 5 and 6 as specified by standard UNI EN 14474:2005.


After determining the initial mass (IM) at a temperature of (20 ± 2) °C and humidity (65 ± 5) %, the specimens are immersed in the solution for 48 h and then subjected to 24 freeze-thaw cycles consisting of:

- freezing in air at a temperature of (-15 ± 2) °C holding the specimen at this temperature for at least 1 h;
- thawing in the solution at a temperature of (20 ± 2) °C holding the specimen at this temperature for at least 1-2 h after this temperature has been regained.

Finally, the specimens are conditioned to constant mass (FM) at a temperature of (20 ± 2) °C and humidity (65 ± 5) %, this being considered to be reached when the results of two successive weighings, carried out at an interval of 24 h, do not differ by more than 0,5 %.

Test results

Recording of initial mass



Specimen		Pre-test mass (28/10/2010)	Intermediate mass (02/11/2010)	Constant mass (08/11/2010) IM
[No.]		[g]	[g]	[g]
1	water	1683,5	1671,2	1663,9
2		1848,3	1836,5	1830,2
3		1779,2	1765,0	1756,3
4	3 % NaCl	1998,8	1991,5	1989,4
5		1877,3	1868,7	1859,6
6		1939,2	1931,2	1928,6

Determination of the resistance to freeze-thaw cycles

Specimen		Mass after cycles (01/01/2011)	Intermediate mass (10/01/2011)	Intermediate mass (20/01/2011)	Intermediate mass (24/01/2011)	Final (constant) mass (25/01/2011) FM	Loss of mass LM
[No.]		[g]	[g]	[g]	[g]	[g]	[%]
1	water	1639,0	1628,2	1619,5	1602,4	1597,2	0,44
2		1816,3	1803,4	1792,8	1770,2	1764,3	0,34
3		1737,5	1725,1	1714,5	1694,0	1688,4	0,49
4	3 % NaCl	1977,1	1963,8	1951,3	1923,0	1917,4	0,11
5		1834,0	1821,9	1810,9	1787,5	1780,8	0,49
6		1903,4	1891,2	1880,3	1857,7	1852,6	0,13

Loss of mass LM = 0,3 %



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Chief Executive Officer
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