

Bellaterra : 04th August 2018
Dossier number : **18/17705-2210**
Petitioner Reference : **GARDENIA QUÍMICA, S.A.**
Avda. Real de Extremadura, 25
12200 Onda (Castellón)

TEST REPORT

RECEIVED MATERIAL

On July 16th 2018 several specimens applied with coating product for the concrete has been received in Applus Laboratories, with the following references as specified by the applicant:

ISOLATE

REQUESTED TESTS:

PRODUCTS AND SYSTEMS FOR THE PROTECTION AND REPAIR OF CONCRETE STRUCTURES; Surface protection systems for concrete, EN 1504-2:2005. Table 1 and 5: Performance characteristics and requirements for products and systems for surface protection.

- 1- Measurement of bond strength by pull-off, UNE-EN 1542:1999
- 2- Determination of water-vapour transmission properties, UNE-EN ISO 7783:2012
- 3- Determination of liquid-water transmission rate (permeability), UNE-EN 1062-3:2008

TEST DATE: From 16/07/2018 to 03/08/2018

RESULTS : See attached pages.

Responsible for Construction Materials
LGAI Technological Center S.A.

Technician Responsible
LGAI Technological Center S.A.

The results included in this document refer exclusively to the indicated materials and has been tested according to the specifications given.

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Page 1- This document is **4** pages long, whereof **0** are appendixes

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RESULTS:

1- Measurement of bond strength by pull-off, UNE-EN 1542:1999

The reference samples, are 300 x 300 x 100 mm sheets, manufactured from aggregates with a maximum size between 8 and 12mm and the surface of which has been pre-treated by gritblasted, with a concrete reference MC(0,40) according to test standard UNE-EN 1766:2000.

NO bubbles, cracks or flaking after the cure is completed have been detected.

Specimen n°	Tensile strength (N/mm ²)
1	0,85 (B)
2	0,95 (B)
3	0,88 (B)
4	1,02 (B)
5	1,13 (B)
Mean	1,0 MPa

NOTE: failure type in brackets.

A: Concrete cohesive failure

A/B: Adhesive failure between concrete and 1st layer applied

B: Cohesion failure between layers

Requirements according to EN 1504-2:2004 Table 5			
Flexible Systems		Rigid Systems	
Without trafficking	With trafficking	Without traffcking	With trafficking
≥ 0,8 MPa	≥ 1,5 MPa	≥ 1,0 MPa	≥ 2,0 MPa

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2- Determination of water-vapour transmission properties, UNE-EN ISO 7783:2012

- Three cylindrical test specimens have been prepared, approximate surface=0,0095 m² (100 mm diameter), to test with support or substrate.
- After curing for 28 days in laboratory conditions, the test specimens undergo 3 cycles of immersion in water and drying.
- Site ambient conditions: 23°C and 50% R.H.
- Saturated dissolving in capsules: dihydrogen ammonium phosphate (93%RH).
- Pressure difference (Δp)= 1210 Pa.

To create an atmosphere of 93% R.H. inside the capsule, a saturated dissolving with dihydrogen ammonium phosphate is used, whereby a 50% humidity shall be attained outside the capsule and 93% inside, thereby reducing the mass of the sample-capsule set.

Final results:

Specimen n ^o	Water-vapour flow rate G (g/h)	Water-vapour transmission rate V (g/m ² * day)	Diffusion-Equivalent air layer thickness Sd (m)	Water vapour resistance factor μ
1	0,0121	30,6	0,7	349
2	0,0085	21,4	1,0	522
3	0,0110	27,8	0,7	378
Mean	0,0105	26,6	0,8	416

Requirements according to UNE-EN 1504-2:2004 Table 5

Class I (permeable to water vapour)	Sd < 5 m
Class II	5m ≤ Sd ≤ 50 m
Class III (dense against water vapour)	Sd > 50 m

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3- Determination of liquid-water transmission rate (permeability), UNE-EN 1062-3:2008

Ceramic specimens have been used as the substrate: approximate size 150x150mm, 30 mm thick, density 1650 kg/m³ and liquid water transmission index 7,5 Kg/(m²·h^{0,5}).

After curing the product for 28 days in laboratory conditions, the test specimens undergo 3 water immersion and drying cycles, and a final drying.

Specimen n ^o	W (Kg/m ² h ^{0,5})
1	0,06
2	0,08
3	0,09
Mean	0,08

Requeriments according to UNE-EN 1504-2:2004 Table 5	
Capillary absorption and permeability to water	W < 0,1 Kg/(m ² * h ^{0,5})

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Applus+, guarantees that this work has been made in accordance with our Quality and Sustainability System, fulfilling the contractual conditions and legal norms.

Within our improvement program we would be grateful if you would send us any commentary that you consider oportune, to the person in charge who signs this document, or to the Quality Manager of Applus+, in the following e-mail address: satisfaccion.ciente@applus.com