



TEST REPORT

TEST REPORT No. 104278-a

CLIENT	MAPEI S.p.A.
CONTACT PERSON	Vincenzo Barraco
ADDRESS	Via Cafiero, 22 20158 MILANO (Italy)
PURPOSE	STAINING OF POROUS SUBSTRATE BY JOINT SEALANTS
TESTED MATERIAL	«Mapeflex MS 55»
RECEIPT DATE	16.12.2022
TEST DATES	17.12.2022 / 11.05.2023
REPORT EMISSION DATE	19.05.2023



Susana Rodríguez
Technical Resp. Construction Materials
Laboratory
Lab Services

* The results contained in this report refer solely and exclusively to the material tested at the time and under the conditions in which the measurements were taken.
* This report may not be reproduced without the express authorisation of FUNDACIÓN TECNALIA R&I, except where done so in its entirety.
(1) Information provided by the customer. Tecnalia is not responsible for the information provided by the customer.



1. TEST SPECIMENS

The following materials belonging to the company "MAPEI S.p.A." were received at the Tecnalía R&I Foundation on 16.12.2022 referenced as ⁽¹⁾:

- Sealant cartridges: «Mapeflex MS 55»
Manufacturing: 12.12.22
Colour: White
- Primer: «Primer FD»
17.03.22 1

2. TESTS REQUESTED

For the reference received, the following tests are requested:

- ◆ Staining of porous substrate by joint sealants according to ASTM C1248:2022





3. CARRIED OUT TESTS

◆ Staining of porous substrate by joint sealants according to ASTM C1248:2022

This test method covers four types of laboratory tests to determine if a joint sealant has a probability of staining a porous substrate.

The tests are on compressed samples, at the manufacturer's rated movement capability, and include storage under standard laboratory conditions, storage in an oven, and exposure in a light exposure device.

At the request of the client, the parameters for the test are:

- Type of substrate: marble, limestone, sandstone, granite.
- Sealant movement capability 20%.
- Exposure:
 - 28 days under laboratory conditions
 - 28 days at 70°C
 - 28 days at light exposure (UV fluorescent and spray)

Test Specimens

Twelve specimens are prepared for each type of exposure and for each type of substrate.

Substrates are 25 mm by 25 mm by 75 mm.

The primer is applied on one of the substrates of each specimen. A 13 mm by 13 mm by 50 mm bead of sealant is applied between the 25 mm by 75 mm parallel faces of the substrates.



Fig. 1: Example of specimen application





Conditioning

The test specimens are cured for 21 days under standard conditions: $(23\pm 2)^{\circ}\text{C}$ and $(50\pm 5)\%$ relative humidity (RH).

Procedure

All test specimens are compressed to the manufacturer's nominal movement class (20%) and compression is maintained.

Exposure:

1 - For each type of substrate, four compressed specimens are stored under standard conditions. Remove two after 14 days and two after 28 days.

2 - For each type of substrate, four compressed specimens are placed in an oven at $(70\pm 2)^{\circ}\text{C}$. Remove two after 14 days and two after 28 days.

3 - For each type of substrate, four compressed specimens are exposed in a fluorescent UV/spray apparatus.

The device operates in accordance with the procedure in Section 7.2 of Practice C1442:

- Type of fluorescent lamps: UVA-340
- Irradiance: $0.89 \text{ W/m}^2\text{nm}$ at 340nm
- Exposure cycle: 5h of UV (BST: 60°C) followed by 1h of UV plus wetting by spraying water on the front surface (due to the samples being more than 20 mm thick).

Remove two after 14 days and two after 28 days.

Post-exposure examination:

After each exposure, the specimens are allowed to cool under standard conditions for one day. The surface of the substrates (both primed and unprimed) is examined to determine whether the surface appearance has changed in any way.

If any staining is present, its width is measured in at least three places.

The substrates are then broken into two pieces along the 25 mm axis and, if any stains are present, their depth is measured in at least three places.





4. RESULTS

◆ **Staining of porous substrate by joint sealants according to ASTM C1248:2022**

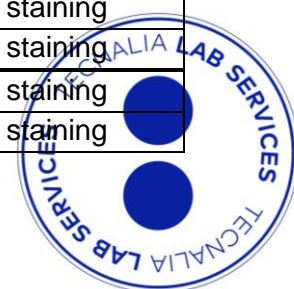
In the following table the obtained results are showed:

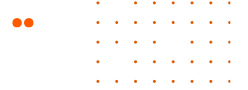
Substrate	Test conditions	Time	Examination of the surface
Marble	Standard conditions	14 days	No change, no staining
		28 days	No change, no staining
	70°C	14 days	No change, no staining
		28 days	No change, no staining
	Light exposure	14 days	No change, no staining
		28 days	No change, no staining

Substrate	Test conditions	Time	Examination of the surface
Limestone	Standard conditions	14 days	No change, no staining
		28 days	No change, no staining
	70°C	14 days	No change, no staining
		28 days	No change, no staining
	Light exposure	14 days	No change, no staining
		28 days	No change, no staining

Substrate	Test conditions	Time	Examination of the surface
Sandstone	Standard conditions	14 days	No change, no staining
		28 days	No change, no staining
	70°C	14 days	No change, no staining
		28 days	No change, no staining
	Light exposure	14 days	No change, no staining
		28 days	No change, no staining

Substrate	Test conditions	Time	Examination of the surface
Granite	Standard conditions	14 days	No change, no staining
		28 days	No change, no staining
	70°C	14 days	No change, no staining
		28 days	No change, no staining
	Light exposure	14 days	No change, no staining
		28 days	No change, no staining



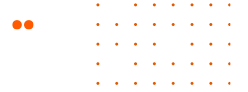


ANNEX I

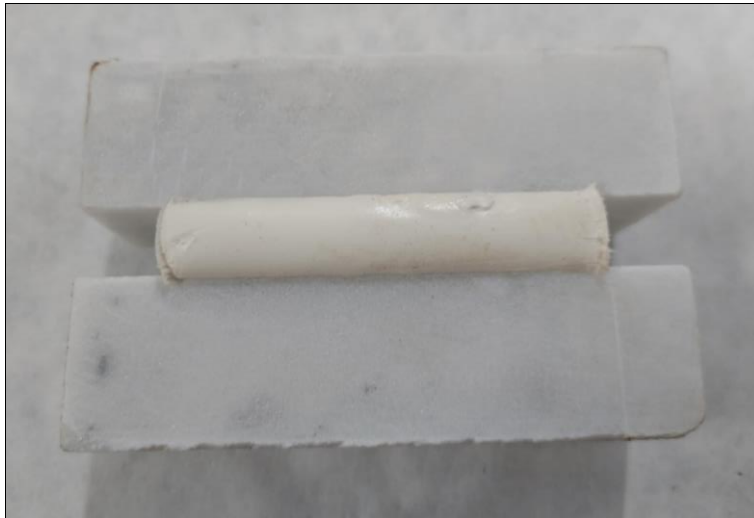
Photographs

Examples of specimens after testing





Marble

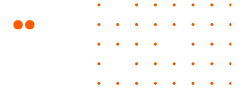


Upper substrate: with primer
Lower substrate: without primer



Upper substrate: with primer
Lower substrate: without primer





Limestone

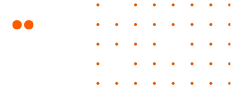


Upper substrate: with primer
Lower substrate: without primer



Upper substrate: with primer
Lower substrate: without primer





Sandstone

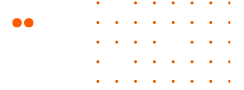


Upper substrate: with primer
Lower substrate: without primer



Upper substrate: with primer
Lower substrate: without primer





Granite



Upper substrate: with primer
Lower substrate: without primer



Upper substrate: with primer
Lower substrate: without primer

