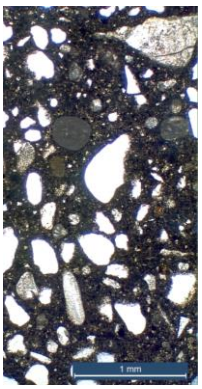



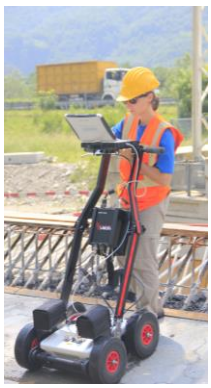

Technical Report

Determination of resistance to severe chemical attack of Penetron Slurry in accordance with EN 13529

07 September 2020

RAA11374D_00

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Determination of resistance to severe chemical attack in accordance with EN 13529 of:

Penetron Slurry

07 September 2020

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Issue and revision record

ID	Prepared by	Client No	Job No	Progres-sive	Revision-Sta-tus	Date	Checked by	Digitally Signed
RAA	PT	11374	-	D	00	07 September 2020	MDT	

Content

1. Overview

1.1 General Background

IMM SA - Swiss based ISO/CEI 17025 accredited materials testing laboratory and consulting firm in the field of materials technology - has been appointed by Penetron International (hereafter referred to as the client) to carry out the determination of resistance of Penetron Slurry to severe chemical attack in accordance with EN 13529. The aim of the test is to determine the performances of Penetron Slurry as a coating for concrete in accordance with the requirements of EN 1504-2.

1.2 Principle of the Test

The test specimens are immersed into various standard aggressive liquids for 28 days. At the end of the 28 days, the specimens are removed from the aggressive liquids and visually inspected in order to determine the presence of blistering, cracking and any other defect.

1.3 Type of coating thickness

The coating system consists of a single component, namely Penetron Slurry. The coating is cement based and was applied by spatula onto standard substrates (dimension 300x200x40 mm) made of MC 0.45 concrete conforming to the requirements of EN 1766. The thickness of the coating is about 2 mm.

1.4 Conditioning

Before proceeding with the test, the samples have been subject to the following conditioning cycle according to the manufacturer's instruction:

1. 24 hours in water at 23 ˚C;
2. 24 hours 23˚C and RH 50%;

Steps 1. and 2. are repeated for 28 days.

1.5 Testing liquids

As agreed with the client, the following testing liquids have been used:

- 20% NaOH solution;
- 5% H_2CO_3 solution;
- 5% H_2SO_4 solution;

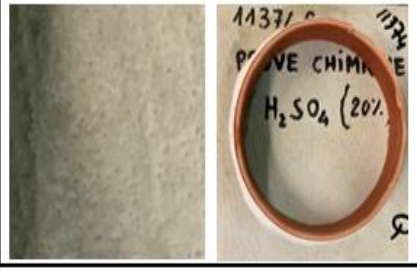
Specimens have been immersed in these aggressive solutions for a period of 28 days, with no external pressure applied.

2. Results

The test results are reported in table 2.1 below.

Table 2.1.

Table 2.1.

PENETRON SLURRY							
SAMPLE ID	Date of start	Date of completion	RESISTANCE TO SEVERE CHEMICAL ATTACK IN ACCORDANCE WITH SN EN 13529				
			Specimens' surface before immersion in the aggressive liquids	After 28 days in 20% NaOH	After 28 days in 5% H_2CO_3	After 28 days in 5% H_2SO_4	Remarks
11374Q	15.07.2020	12.08.2020					After 28 days of immerison in 20% NaOH, quite significant discolorotation can be observed, probably due to the precipitation of NaOH crystals. Absence of blistering, cracking and other defects. No loss of hardness measured. After 28 days of immersion in 5% H2CO3, no defect whatsoever could be observed. After 28 days immersion in 5% H2SO4, a slight discoloration could be observed. However, no other defcts could be identified and no loss of hardness measured.

3. Rating

Based on the above results, we conclude that Penetron Slurry complies with the requirement stated in Table 5 (Performance requirements for coatings – resistance to severe chemical attack) of EN 1504-2 for the aggressive solutions mentioned above.

4. References

1. **EN 1504-2**: *Products and systems for the protection and repair of concrete structures - Definitions, requirements, quality control and evaluation of conformity. Part 2. Surface protection systems for concrete;*
2. **EN 13529**: *Products and systems for the protection and repair of concrete structures. Test methods. Determination of resistance to severe chemical attack;*