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MA 39 – VFA 2018-1065.02

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Vienna, 15 November 2018

Test Report

on

Limestone Slabs

Client:	Finalit Komplett-Steinpflege GmbH
Assignment date:	6 September 2018
Test material submitted:	7 September 2018; test material delivered.
Test material:	9 limestone slabs 15 cm x 15 cm x 3 cm
Test programme:	In compliance with ÖNORM EN 1339, version of 1 January 2007, per the client's specifications: Determination of resistance to the freeze-thaw cycle without de-icing salt

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This Report consists of 3 pages and 1 Appendix (10 pages).

The tests were performed exclusively on the test objects. This Report has been endorsed with the official seal of the City of Vienna. Publication and extracts of the Report
require the written approval of MD 39. Please note the currently valid General Terms and Conditions of MD 39 online at http://www.ma39.wien.at.

Certified in accordance with the requirements of ÖNORM EN ISO 9001:2015 and ÖNORM EN ISO 14001:2015 by Quality Austria

Office hours: Monday to Thursday: 7:30 - 15:30 and Friday: 7:30 - 13:30; VAT No.: ATU 36801500
Bank details: Bank Austria, IBAN: AT631200051428007186; BIC: BKAUATWW

1. General

1.1 Assignment

Finalit Komplett-Steinpflege GmbH commissioned MD 39 to perform testing of resistance to the freeze-thaw cycle in accordance with ÖNORM EN 1339, version of 1 January 2007, on the limestone slabs delivered, without de-icing salt.

The client specified how the test was to be performed and the evaluation of the test results is to be performed by the client.

This Report was issued at the request of the client in addition to the Test Report MA 39 – VFA 2018-1065.01.

1.2 Test material

On 7 September 2018, the client delivered to MD 39 a total of 9 slabs of limestone (3 sets of 3 items each) with the dimensions 15 cm x 15 cm x 3 cm.

According to the information provided by the client, the surfaces of the slabs had been treated with varying applications of a pore filler “21S”.

The limestone slabs delivered were labelled as follows:

3 x	“untreated”	(see	image no. 2018-1065-01-1 in the Appendix)
3 x	“21S”	(see	image no. 2018-1065-01-2 in the Appendix)
3 x	“21S + 25”	(see	image no. 2018-1065-01-3 in the Appendix)

After having been delivered to MD 39, the samples were stored until the testing and prepared for it in accordance with the norms.

1.3 Measuring and testing equipment

The following measuring and testing equipment was used to the determine the measurement and testing results presented in this Report:

Inv.no. 1533 scale, inv.no. 1653 freezer, inv.no. 1251 measuring tape

2 Conducting of test and results

The test for resistance to the freeze-thaw cycle was performed in accordance with ÖNORM EN 1339, version of 1 January 2007, Annex D, without de-icing salt.

The test surfaces of the samples were photographed before the beginning of the test and after the 28th freeze-thaw cycle (see image documentation in the Appendix, pages 2 to 10).

Test results

After the 28th freeze-thaw cycle (only with water, no de-icing salt), a maximum weathering of 16 g/m^2 was identified on the surfaces of the tested samples.

The following table provides an overview of the weathering identified.

Slab label	Sample no.	Weathering after 28 FTCs [g/m^2]
untreated	1	2
	2	16
	3	1
Upper side impregnated with 21S	1	5
	2	8
	3	2
Upper side impregnated with 21S + 25	1	1
	2	1
	3	1

The test results will be evaluated by the client.

Official:	Lab Manager:	Manager of the Research Centre, Laboratory and Certification Services:
Ing. Herbert Kurz Techn. Amtsrat	Dipl.-Ing. Andreas Tichy Oberstadtbaurat	Dipl. -Ing. Georg Pommer Senatsrat

Image no. 2018-1065-01-1

Slabs labelled “untreated”
(untreated slabs)

Image no. 2018-1065-01-2

Slabs labelled “21S”
(upper side impregnated
with “21S”)

Image no. 2018-1065-01-3

Slabs labelled “21S +25”
(upper side impregnated with
“21S + 25”)

Image no. 2018-1065-01-5

Slab no. 1, start of test (untreated)

Image no. 2018-1065-01-6

Slab no. 1, end of test (untreated)

Weathering amount: 2 g/m^2

Image no. 2018-1065-01-7

Slab no. 2, start of test

(untreated)

Image no. 2018-1065-01-8

Slab no. 2, end of test
(untreated)

Weathering amount: 16 g/m

Image no. 2018-1065-01-9

Slab no. 3, start of test (untreated)

Image no. 2018-1065-01-10

Slab no. 3, end of test (untreated)

Weathering amount: 1 g/m^2

Image no. 2018-1065-01-11

Slab no. 1, start of test (upper side impregnated with “21S”)

Image no. 2018-1065-01-12

Slab no. 1, end of test (upper side impregnated with “21S”)

Weathering amount: 5 g/m^2

Image no. 2018-1065-01-13

Slab no. 2, start of test (upper side impregnated with “21S”)

Image no. 2018-1065-01-14

Slab no. 2, end of test (upper side impregnated with “21S”)

Weathering amount: 8 g/m

Image no. 2018-1065-01-15

Slab no. 3, start of test (upper side impregnated with “21S”)

Image no. 2018-1065-01-16

Slab no. 3, end of test (upper side impregnated with “21S”)

Weathering amount: 2 g/m^2

Image no. 2018-1065-01-17

Slab no. 1, start of test (upper side impregnated with “21S +25”)

Slab no. 1, end of test (upper side impregnated with “21S +25”)

Weathering amount: 1 g/m^2

Image no. 2018-1065-01-18

Image no. 2018-1065-01-19

Slab no. 2, start of test (upper side impregnated with “21S +25”)

Image no. 2018-1065-01-20

Slab no. 2, end of test (upper side impregnated with “21S +25”)

Weathering amount: 1 g/m

Image no. 2018-1065-01-21

Slab no. 3, start of test (upper side impregnated with “21S +25”)

Image no. 2018-1065-01-22

Slab no. 3, end of test (upper side impregnated with “21S +25”)

Weathering amount: 1 g/m^2