Testimonial

about

"Finalit No. 20"

Applicant: Finalit GmbH

Application Date: 6 March 2000

Test Object: FINALIT No. 20 1l canister

Receipt of Test Object: 6 March 2000

Test Programme: 1)   Fluoride detection test
                   2)   Behaviour with water and steam
                   2.1) Capillary water absorption
                   2.2) Permeability to steam

The report comprises 3 pages and 1 appendix (3 pages)

MA 39 – VFA 2000-0313.01

1. General

1.1. Commission

MA 39 – VFA was commissioned to test **FINALIT No. 20 – Hot Impregnation** with regard to capillary water absorption and permeability to steam.

1.2. Test Object

According to the product description FINALIT No. 20 is a long-term colourless protective impregnation for all materials.

FINALIT No. 20 was provided by the applicant.

An examination of the elementary composition with an electron beam microprobe ascertained that **FINALIT No. 20** does not contain fluoride or fluoride compounds.

2. Test Procedure

2.1. Capillary Water Absorption

For this test, cubes of sandstone from Margarethen with a side length of 5 cm were used as test objects.

Five cubes were coated on all sides with **FINALIT No. 20.** The impregnating material was heated to + 70°C before application.

The uncoated cube and the cube that had been coated with **FINALIT No. 20** were immersed in water and the water absorption of the material was determined gravimetrically after various absorption times.

The water absorption values (kg/m^2) and the water absorption co-efficiencies ($kg/m^2 h^{0.5}$) were recorded according to absorption time (see tables and diagrams in the appendices) and compared with those of the uncoated samples. The water permeability (WP) was determined using the following relation:

$$WP (\%) = \frac{\text{Water absorption of the coated sample } (kg/m^2)}{\text{Water absorption of the uncoated sample } (kg/m^2)} \; 100$$

2.2. Determining Permeability to Steam

To measure permeability to steam, discs of sandstone from Margarethen with a diameter of 91 mm were coated with **FINALIT No. 20.**

The coated discs were laid upon flat vessels as their final layer and then the edges were encapsulated so that they were impermeable to steam.

Permeability to steam was measured according to ÖNORM B 6016, Determining Permeability to Steam of Building and Insulation Materials, 1 December 1988.

The test was carried out under standard reference atmosphere B (23 – 50/100). The testing temperature in this case is approx. 23°C, relative air humidity on one side is 52%, on the other approx. 93%.

Below are the individual values for permeability to steam and the mean value. The influence of the sandstone was taken into account and is no longer included in the values.

	1	2	3	Mean	Mean coating thickness μm
Permeability to steam	$0.78.10^{-5}$	$0.24.10^{-5}$	$0.71.10^{-5}$	$0.58.10^{-5}$	40

The measured values produce a diffusion equivalent air layer thickness of $\mu s = 0.16$ m.

3. Evaluation

Impregnation with **FINALIT No. 20** greatly reduces the absorption of water by sandstone.

FINALIT No. 20 is also suitable as impregnation to reduce the permeability to steam.

Furthermore, no fluoride was detected in **FINALIT No. 20.**

Processed by   Head of Laboratory

Ing. E. Koselsky   Dipl. Ing. G. Pommer
                                                      Oberstadtbaurat

                         Head of the Laboratory
                         And Research Institute

                         Dipl. Ing. W. Fleck
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Capillary Water Absorption

Material   FINALIT No. 20

Absorption surface uncoated sample: 150 cm^2
Absorption surface coated sample: 150 cm^2

Time (mins)	Time (Hours)	Water absorption (g) uncoated	coated	Water absorption (kg/m^2) uncoated	coated	Water absorption co-efficient Kg/m^{2}h$^{0.5}$ uncoated	kg/ m^{2}h$^{0.5}$ coated
0	0	294.76	293,32	0.00	0.00		
10	0.2	299.76	293.42	0.33	0.007	0.81	0.016
30	0.5	301.32	293.43	0.44	0.007	0.62	0.010
60	1	301.45	293.52	0.45	0.013	0.45	0.013
120	2	301.51	293.63	0.45	0.021	0.32	0.015
180	3	301.56	293.64	0.45	0.021	0.26	0.012
240	4	301.68	293.68	0.46	0.024	0.23	0.012
300	5	301.71	293.72	0.46	0.027	0.21	0.012
360	6	301.94	293.76	0.48	0.029	0.20	0.012
420	7	301.97	293.78	0.48	0.031	0.18	0.012
1440	24	302.38	293.88	0.51	0.037	0.10	0.008

Graphik
Wasseraufnahme = Water absorption
Unbeschichtet = Uncoated
Beschichtet = Coated

Capillary Water Absorption

Material: FINALIT No. 20

Material   FINALIT No. 20

Absorption surface uncoated sample: 150 cm^2
Absorption surface coated sample: 150 cm^2

Time (mins)	Time (Hours)	Water absorption (g) uncoated	coated	Water absorption (kg/m2) uncoated	coated	Water absorption co-efficient Kg/ m^{2}h$^{0.5}$ uncoated	kg/ m^{2}h$^{0.5}$ coated
0	0	294.76	294,69	0.00	0.00		
10	0.2	299.76	294.83	0.33	0.009	0.81	0.023
30	0.5	301.32	294.88	0.44	0.013	0.62	0.018
60	1	301.45	294.89	0.45	0.013	0.45	0.013
120	2	301.51	294.99	0.45	0.020	0.32	0.014
180	3	301.56	295.02	0.45	0.022	0.26	0.013
240	4	301.68	295.13	0.46	0.029	0.23	0.015
300	5	301.71	295.14	0.46	0.030	0.21	0.013
360	6	301.94	295.21	0.48	0.035	0.20	0.014
420	7	301.97	295.22	0.48	0.035	0.18	0.013
1440	24	302.38	295.27	0.51	0.039	0.10	0.008

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Capillary Water Absorption

Material: FINALIT No. 20

Absorption surface uncoated sample: 150 cm^2
Absorption surface coated sample: 150 cm^2

Time (mins)	Time (Hours)	Water absorption (g) uncoated	coated	Water absorption (kg/m2) uncoated	coated	Water absorption co-efficient Kg/ m^{2}h$^{0.5}$ uncoated	kg/ m^{2}h$^{0.5}$ coated
0	0	294.76	299,34	0.00	0.00		
10	0.2	299.76	299.45	0.33	0.007	0.81	0.018
30	0.5	301.32	299.47	0.44	0.009	0.62	0.012
60	1	301.45	299.50	0.45	0.011	0.45	0.011
120	2	301.51	299.59	0.45	0.017	0.32	0.012
180	3	301.56	299.60	0.45	0.017	0.26	0.010
240	4	301.68	299.73	0.46	0.026	0.23	0.013
300	5	301.71	299.74	0.46	0.027	0.21	0.012
360	6	301.94	299.78	0.48	0.029	0.20	0.012
420	7	301.97	299.80	0.48	0.031	0.18	0.012
1440	24	302.38	299.84	0.51	0.033	0.10	0.007

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