CZECH TECHNICAL UNIVERSITY IN PRAGUE
FACULTY OF CIVIL ENGINEERING –
TESTING LABORATORY
testing laboratory No. 1048 accredited by
CIA under ČSN EN ISO/IEC 17025:2018
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L 1048

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Order No: 8602524A000

TEST REPORT No: 124026/2025

upon the test : **Determination of the radon diffusion coefficient of WEBER BASEGUARD carried out in accordance with the ISO/TS 11665-13**

Client`s name and address:

Saint-Gobain Weber GmbH
Schanzenstraße 84
40549 Düsseldorf
Germany

ČESKÉ VYSOKÉ UČENÍ TECHNICKÉ V PRAZE
Zkušební laboratoř FSv akreditovaná ČIA pod č.1048

Date of issue: 16.4.2025

Approved by:

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prof. Ing. Martin Jiránek, CSc.
Technical head of OL 124 laboratory

Subject of the test: #weber BaseGuard# – a reactive polymer cement waterproofing coating

Testing procedure: Determination of the radon diffusion coefficient

Test regulation: ISO/TS 11665-13

Test samples were sampled or manufactured by: Client – results refer to the samples as they were taken over

Date of taking over test samples: 31.3.2025

Samples taken over by: prof. Ing. Martin Jiránek, CSc.

Marking of test samples: 21/25/J (1 – 3)

Manufacturing site of test pieces: –

Date of manufacturing test pieces: –

Test pieces manufactured by: –

Marking of test pieces: –

Test execution date: 10.4.2025 – 14.4.2025

Test execution place: laboratory OL124 – D2044d

Testing device:

Radon detectors TSR-4 of the TERA system (12424)
Measuring system with ionization chambers operating in current mode (12420)
Radon concentration measuring system RM-2 (12428)
Micrometer (12403)

Name of the person who performed the test:

prof. Ing. Martin Jiránek, CSc., Ing. Veronika Kačmaříková, Ph.D.

Potential data on deviations from the test regulation: –

Data on uncertainties of quantitative results: The expanded uncertainties of measurement ±U mentioned are the product of standard measurement uncertainties and the expansion coefficient k = 2, which provides a confidence interval of approx. 95 %.

The report prepared by: Ing. Veronika Kačmaříková, Ph.D.

The report checked by: –

Test samples

The dimensions of the samples were 135 x 325 mm (effective area 293.10^{-4} m^2) and their thickness varied from 4,26 mm to 4,55 mm.

Test method

Radon diffusion coefficient was determined according to the method A of ISO/TS 11665-13. The tested samples were placed between the source and the receiver containers each with a volume $2,7.10^{-3}$ m^3. Radon diffuses through the samples from the source container, which is connected to the radon source RF 100, to the receiver containers. Concentrations on both sides of the tested samples are measured continuously by radon detectors TSR-4 of the TERA system (receiver containers) and current mode ionization chambers (source container). Radon diffusion coefficient was derived from the process of fitting the numerical solution to the curves of radon concentration measured in the receiver containers. Numerical solution is based on the one-dimensional time-dependent diffusion equation describing radon transport through the tested material.

Laboratory conditions

#weber BaseGuard# – material

Steady state radon concentration in the source container: 2,8 ± 0,1 MBq/m^3

Maximum radon concentration in the receiver containers: 25,6 ± 0,5 kBq/m^3

Test results

The resulting mean values of determined quantities including expanded measurement uncertainty, are listed in the following table in the form of (mean ± U).

TESTED MATERIAL	#weber BaseGuard#
Rn diffusion coefficient D (m^2/s)	$(3,5 \pm 0,4).10^{-11}$
Rn diffusion length l (m)	$(4,1 \pm 0,5).10^{-3}$
Rn resistance R_{Rn} (Ms/m)	156,2 ± 18,6

The radon diffusion length was calculated according to the equation $l = \sqrt{D/\lambda}$ and the radon resistance as follows: $R_{Rn} = \frac{\sinh(d/l)}{\lambda \cdot l}$, where $\lambda = 2,1.10^{-6}$ s^{-1} and $d = 4,50$ mm $= 4,50.10^{-3}$ m.

Sampling performed by the client - results refer to the samples as received.

data marked in this way were supplied by the client; OL124 is not responsible for them.

end of the report