Determination of the adhesion and elongation of PC® Leakinject 2K Flex 6811 LV at (3±2)°C

1. Determination of the adhesion of PC® Leakinject 2K Flex 6811 LV on a dry concrete slab, a humid concrete slab and on a sand blasted (SAE2.5) metal plate at (3±2)°C.

Two concrete slabs of 300 mm * 300 mm *30 mm and a sandblasted metal plate (SAE2.5) of 250 mm * 250 mm * 7 mm (which was degreased first with PC® Methyl) are framed. This framed substrate is conditioned during 3 days at 20°C. After this period, one of the two concrete slabs is submersed in water during 10 minutes and afterwards we let this concrete slab leak out for 1 hour. Then, the frame of the three substrates is filled with the product PC® Leakinject 2K Flex 6811 LV (photo's 1-a and 1-b) in a thickness of about 3 mm. Before pouring the product PC® Leakinject 2K Flex 6811 LV in the form work, the A and B component of this product were conditioned during 1 day at a 20°C . PC® Leakinject 2K Flex 6811 LV consists of an A- and a B-component which are mixed in a gravimetric ratio A/B = 1.2/1.35 or a volumetric ratio of A/B = 1/1. The used batch numbers are PC® Leakinject 2K Flex 6811 LV A: PRO2652 and PC® Leakinject 2K Flex 6811 LV B: PRO2660.

Photo 1-a: A sand blasted metal plate SAE2.5 equipped with a form work.

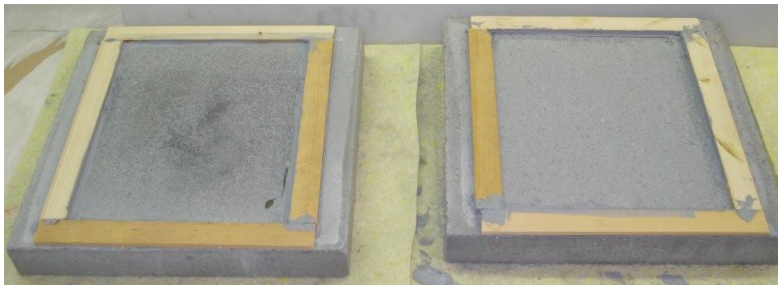

Photo 1-b: Two concrete slabs equipped with a form work.

After 7 days of polymerization at 20 °C 5 cylindrical aluminium test dollies (dimensions Ø 20 mm, h 15 mm) are glued with the epoxy glue PC® 5800/BL on the with PC® Leakinject 2K Flex 6811 LV covered concrete slabs in a pattern as described in EN 1542 (photo's 2-a, 2-b and 2-c). PC® 5800 BL consists of an A and B component which are mixed in a gravimetric proportion A/B = 5.15/2.35. The used batch numbers are PC® 5800/BL A: PRO2871 and PC® 5800/BL B: PRO2884.

Photo 2-a: After 7 days of polymerization at 20 °C, 5 cylindrical aluminium test dollies are glued with the epoxy glue PC® 5800/BL on the with PC® Leakinject 2K Flex 6811 LV covered substrates in a pattern as described in EN 1542. This photo shows the application of the PC® Leakinject 2K Flex 6811 LV on the concrete slab which was submersed in water.

Photo 2-b: After 7 days of polymerization at 20 °C, 5 cylindrical aluminum test dollies are glued with the epoxy glue PC® 5800/BL on the with PC® Leakinject 2K Flex 6811 LV covered substrates in a pattern as described in EN 1542. This photo shows the application of the PC® Leakinject 2K Flex 6811 LV on the dry concrete slab.

Photo 2-c: After 7 days of polymerization at 20 °C, 5 cylindrical aluminum seals are glued with the epoxy glue PC® 5800/BL on the with PC® Leakinject 2K Flex 6811 LV covered substrates in a pattern as described in EN 1542. This photo shows the application of the PC® Leakinject 2K Flex 6811 LV on the sand blasted metal plate.

The glue will harden during 2 days at 20 °C. After this period, the 3 samples are conditioned during 48 hours a refrigerator at 3 °C. Afterwards the dollies of each of the three samples are subjected to a tensile test. The results of these tests are summarized in table 1 here below.

	dolly n° 1	dolly n° 2	dolly n° 3	dolly n° 4	dolly n° 5	Average value
Bond strength on a dry concrete slab (N/mm²)	1.76*[1]	1.03[*1]	1.30[*1]	1.09[*1]	1.34[*1]	1.30
Bond strength on a humid concrete slab (N/mm²)	0.72[*2]	0.49[*2]	0.51[*2]	0.72[*2]	0.69[*2]	0.63
Bond strength on a sand blasted metal plate SAE2.5 (N/mm²)	4.38[*3]	3.12[*3]	3.41[*3]	3.58[*3]	3.47[*3]	3.59

[*1]Cohesive failure in PC® Leakinject 2K Flex 6811 LV and adhesive failure between PC® 5800/BL and PC® Leakinject 2K Flex 6811 LV.
[*2]Cohesive failure in PC® Leakinject 2K Flex 6811 LV.
[*3]Adhesive failure between PC® 5800/BL and PC® Leakinject 2K Flex 6811 LV.

Table 1: Results of bond tests at 3°C of PC® Leakinject 2K Flex 6811 LV on a dry and humid concrete substrate and a metal substrate.

2. Determination of the elongation of PC® Leakinject 2K Flex 6811 LV at (3±2)°C.

PC® Leakinject 2K Flex 6811 LV consists of an A- and B-component which are mixed in a gravimetric ratio A/B = 1.2/1.35 or a volumetric ratio A/B = 1/1. After mixing A and B intensively, the product is poured into a PE-recipient in a thickness of ± 3 mm (photo 3). Before the PC® Leakinject 2K Flex 6811 LV was poured into the recipient, the A- and B-components were conditioned during 1 day at 20°C. The used batch numbers are PC® Leakinject 2K Flex 6811 LV A: PRO2652 and PC® Leakinject 2K FLex 6811 LV B: PRO2660.

Photo 3: PC® Leakinject 2K Flex 6811 LV poured into a PE-recipient in a thickness of ± 3 mm.

After 7 days conditioning at 20 °C the fully polymerized PC® Leakinject 2K Flex 6811 LV is taken out of the PE-recipient. The discs are divided in 5 samples of 160 mm * 30 mm * 3 mm which are conditioned during 2 days at 3°C. After this period tensile tests are done on the 5 samples according to EN ISO 527 in order to determine the elongation at break. The results of these tests are listed in table 2. The stress-strain curves are listed in annex 1.

	Sample 1	Sample 2	Sample 3	Sample 4	Sample 5	average
Tensile strength (N/mm²)	1.41	1.21	2.43	2.01	1.23	1.66
Elongation at break (%)	124.2	121.6	151.5	104.9	83.4	117.1

Table 2: Results of the tensile tests of PC® Leakinject 2K Flex 6811 LV at 3°C.

Conclusion: the tests mentioned here above show that PC® Leakinject 2K Flex 6811 LV complies with the adhesion and elongation requirements as prescribed in EN 1504-5.