Determination of the injectability through a sand column of PC® Leakinject 2K Flex 6811 LV according to EN 1771

1. Test principle

The test consists on injecting, under a constant pressure, the product in a transparent plastic tube filled with graded sand. The tube is placed vertically and the injection must be done from bottom to top. The time it takes for the product to attain the markers on the tube is used to qualify the injectability of the product.

2. Test configuration

Photo 1 shows the pressure vessel that pushes the product through the sand column under a constant pressure. Photo 2 shows the total test configuration. The total length of the flexible tube that supplies the product to the sand column and the sand column itself is 900 mm. The inner diameter of the flexible tube is 6 mm. The difference between the bottom of the pressure vessel and the injection column is 400 mm.

Photo 1 : Pressure vessel that pushes the product trough the sand column.

Photo 2 : Total test configuration.

At the top and at the bottom the injection column is equipped with perforated rubber plugs. The inner diameter of the plastic tube is 24 mm. Along the sand column, a measuring ruler is

positioned in order to follow the ascending height of the product during the injection (photo 3).

By a flexible tube (length 600 mm, Ø 6 mm) the upper side of the column is connected to a measuring cup so that the abundant amount of product can be measured. The time registration stops as soon as 20ml of abundant product is measured in this cup. (Photo 4).

Photo 3 : At the top and at the bottom the injection column is equipped with perforated rubber plugs. Along the sand column, a measuring ruler is positioned.

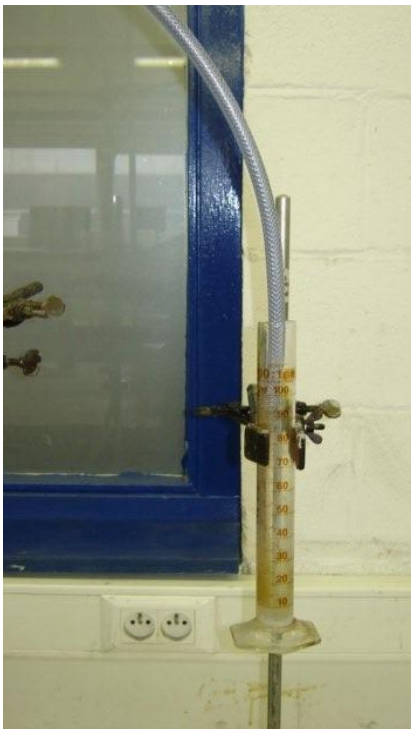


Photo 4 : The abundant amount of product is collected in a measuring cup.

The used sand has a grading between 0.7 mm and 1.25 mm. Sand of this grading is exposed to the same pressure as there would be when injecting a crack in concrete of 0.2 mm width.

The product that must be injected is placed inside the pressure vessel so that the difference in height between the bottom of the inner side of the pressure vessel and the suction hose of the pressure vessel is 20 mm.

Photo's 5 and 6 show the test configuration at the end of the injection.

Photo 5 : Test configuration at the end of the injection.

Photo 6 : Test configuration at the end of the injection..

3. Results

* Gravimetric mixing ratio of PC® Leakinject 2K Flex 6811 LV: A/B = 12/13.5
* Injection method: in a dry environment
* Quantity of product that has to be injected: 500 g. This means 236 g A and 264 g B.
* Amount of pressure that has to be executed: 0.075 MPa = 0.75 bar

Sand column 1

* Quantity of quartz (0.7-1.25) = 267.2 g

* Temperature of the different components before the injection : 22.8 °C for the A and B component.

* Temperature of the mixture before mixing : 22.8 °C.

* Mixing time: 1 minute (manually with wooden spatula).

* Temperature of mixture after mixing : 23.1 °C.

Attained height of the resin (mm)	Time (in seconds)
50	2
100	6
150	10
200	14
250	21
300	29
350	39
20 ml abundant product in measuring cup	93

* Initial mass of the column filled with quartz 0.7-1.25 (M1): 440,5 g

* Mass of the injected sand column (M3): 490,3 g

* Injected mass: 49.8 g

Classification according EN 1771: easy

Sand column 2

* Quantity of quartz (0.7-1.25) = 267.2 g

* Temperature of the different components before injection : 22.7 °C for the A and B component.

* Temperature of the mixture before mixing : 22.7 °C.

* Mixing time: 1 minute (manually with wooden spatula).

* Temperature of the mixture after mixing: 23.0 °C.

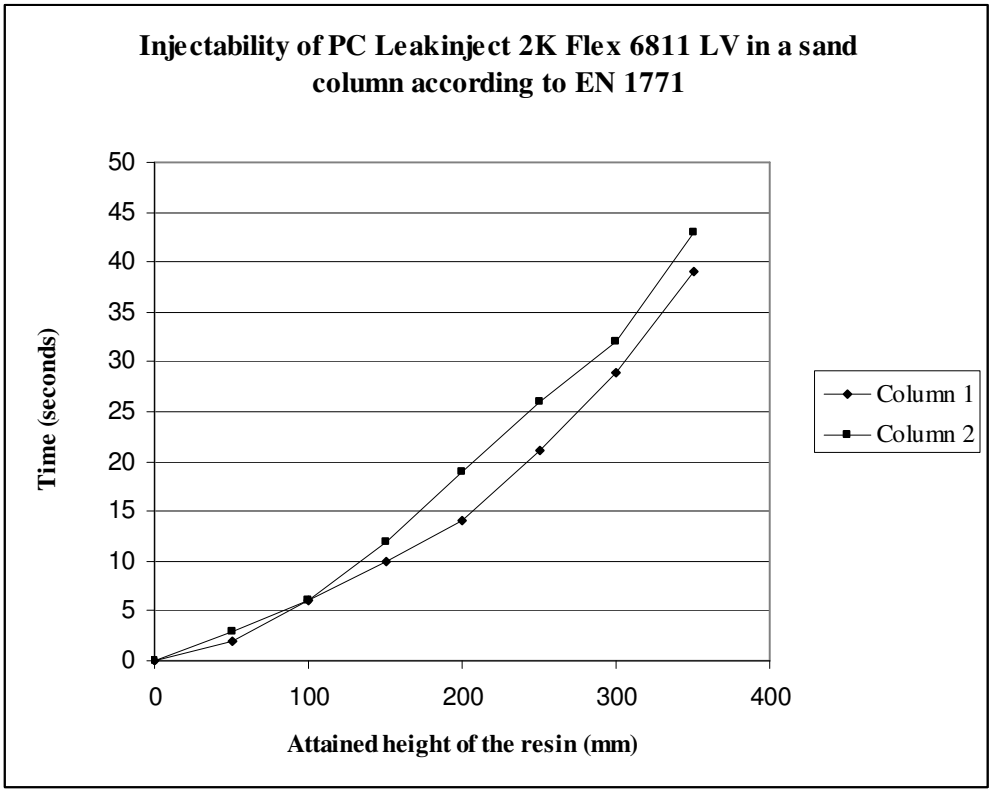
Attained height of the resin (mm)	Time (in seconds)
50	3
100	6
150	12
200	19
250	26
300	32
350	43
20 ml abundant product in measuring cup	102

* Initial mass of the column filled with quartz 0.7-1.25 (M1) : 443.2 g

* Mass of the injected sand column (M3) : 494.1 g

* Injected mass: 50.9 g

Classification according EN 1771: easy


Injectability of PC Leakinject 2K Flex 6811 LV in a sand column according to EN 1771
Time (seconds)
50
45
40
35
30
25
20
15
10
5
0
0
100
200
300
400
Attained height of the resin (mm)
Column 1
Column 2