

Water Sealing an Underground Carpark through Injection Technology



The project site

PROJECT

Postal site Berchem

LOCATION

Berchem, Belgium

CONTRACTOR

ECC nv

CUSTOMER CHALLENGES

- Cracks in the wall of the underground carpark
- Water leakage through joints where two buildings met

SOLUTIONS

PC® 509 Z Acryl - acrylic injection resin

PC® 509 Rubber Acryl - acrylic injection resin

In the underground carpark beneath several buildings on the postal site in the city of Berchem near Antwerp, various problems needed solving.

A first problem were the cracks found in the walls of the carpark, causing water to leak out of the structure. A second issue concerned the joint where two buildings of the site met. Underneath this joint a water sealing cushion has to be formed to keep ground water from coming up through the joint.

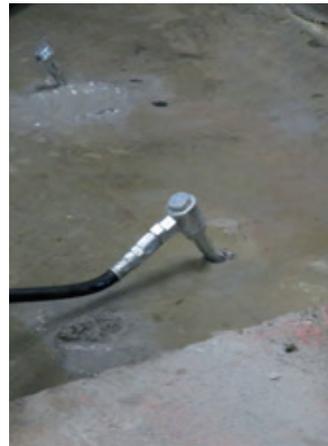
In the initial phase, the cracks in the walls had to be sealed. The contractor chose to inject the cracks with **PC® 509 Z Acryl**. This is a four-component acrylic injection resin with low viscosity, especially suitable for the water sealing of very fine cracks and voids.

In order to inject the resin into the cracks, holes were drilled near each crack and injection packers were placed into the holes. Subsequently, the resin was injected into the cracks using a two-component pump. When the resin emerged from the structure, the hole was sealed off by accelerating the reaction time of the injection resin with a torch.

A second phase in the project concerned the curtain injection at the joint where the two buildings met. The purpose of this curtain injection was to form a water sealing cushion beneath the base plate of the buildings, that was situated 40 cm deep into the ground.



Sealing of the injection holes with a torch



Packer ready for the screen injection



Two-component injection pump

This was done using the **PC® 509 Rubber Acryl**, a tough and elastic five-component injection resin.

To be able to reach beneath the base plate and achieve the formation of this water sealing cushion, they decided to drill 60 cm deep into the ground. After this 150 mm long packers were placed into the holes. Two mixtures were created for the injection process. The first mixture consisted of the PC® 509

Rubber Acryl resin, additive and catalyst. The second mixture was formed by mixing the strengthener and initiator. By the use of a two-component pump, connected to the packers, the mixtures were injected into the ground in a 1/1 ratio.

Sufficient mixture has been injected when the pumping of injection resin slows down, or stops completely.