

FUTURE FILTRATION

SILICON CARBIDE CERAMIC MEMBRANES



GROUNDWATER REMEDIATION

TREATMENT OF WATER FROM GROUND WATER LOWERING

BACKGROUND

High quality groundwater is an important natural resource. It is a source of drinking water for the public as well as process water for industrial applications.



Picture 1: Construction site in central Copenhagen

GROUND WATER LOWERING

Groundwater can be contaminated through a number of ways including improper handling of process chemicals or disposal of waste. Contamination also happens during the process of ground water lowering in which a dry foundation for constructions under the water table is built. In most cases, the ground water must be treated before being led back into the ground water reservoir. Pumping ground water back into the underground is most often carried out in urban areas in order to ensure that the ground water table remains stable and to avoid settlement damage.



Picture 2: Ground water from construction site in settling tank (prior to UF membrane treatment)

SiC MEMBRANES REPLACES SANDFILTERS

The subcontractor needed a compact and reliable solution for treating ground water as it had just started the process of constructing one of the 18 new metro stations of the new “City Ring” in Copenhagen.

The metro stations are built underground which involves drilling and digging and thus the ground water must be lowered. Initially, sand filters were used to treat the contaminated ground water, however, it turned out that these could not deliver a consistent water quality due to the fluctuating feed water conditions. It was therefore decided to trial one of Liqtech’s SiC ceramic industrial elements with pore size of 0,04 microns. This trial turned out successful as the SiC membrane proved to be able to deliver consistent water quality as well as a high capacity.



Picture 3: UF system in container (left) - LiqTech SiC membranes mounted in stainless steel housings (middle) - Filter press for sludge treatment (Right)

It was immediately decided to build a containerized solution with multiple industrial elements.

Advantages of LiqTech’s SiC ceramic membranes for ground water remediation:

- Improved water quality
- Accepts a wide range of feed water conditions
- Small foot print system – containerized systems
- Durable and reliable technology
- Easy to move from one construction site to another