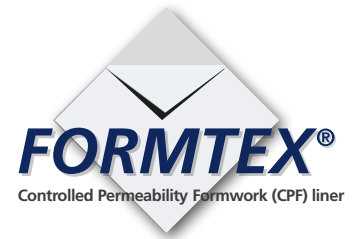


# Specifying CPF liners



## Which parameters are important and why?

When specifying a CPF liner, the following have to be taken into consideration:

- Liner characteristics
- Concrete enhancements
- Installations and reuse

The build-up and the hydraulic properties, both basic properties characterising the liner, are important to ensure satisfactory performance of the CPF liner.

In theory, specifying the appropriate properties and characteristics for a liner will ensure concrete enhancements, but in practice, enhancement

of the concrete cover also has to be specified. Enhancements of the concrete will always be measured compared to a control concrete.

Since there are no standards defining how to test CPF concrete, a producer can choose any control concrete. When choosing a control concrete of poor quality, great enhancement expressed in percentages can be achieved without actually ensuring satisfactory enhancements on concrete of standard quality.

However, the properties of these 2 points combined with proper installation will ensure a CPF liner that will perform to your needs.

## Liner characteristics

### The liner must consist of both a filter and a drainage layer

A liner consisting only of a filter will quickly become saturated with water, as it does not have a drainage layer to drain off the water. When the filter is soaked it will not be able to drain off the excess water from the concrete, and the result will be a blow-hole free surface but no significant durability enhancement of the concrete.

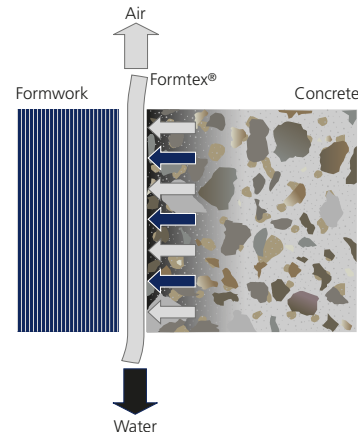


### The mean pore size of the filter must be less than 35 microns

The pore size is designed to prevent cement particles from migrating to the drainage layer.

### The liner must be able to drain up to 3 l/m<sup>2</sup> of water.

This is to ensure that the filter is not too dense for water to pass freely.



### The liner must have a water retention capacity of at least 0.45 l/m<sup>2</sup> [1].

If the liner is able to retain at least 0.45 l/m<sup>2</sup> of water in its structure it will ensure proper hydration of the concrete cover. A humid environment will reduce microcracks in the cover, as the concrete will not dry out.

[1] These values should be certified by a EOTA member (The European Organisation for Technical Approvals) or equivalent. For more information: <http://www.eota.be>

# Specifying CPF liners

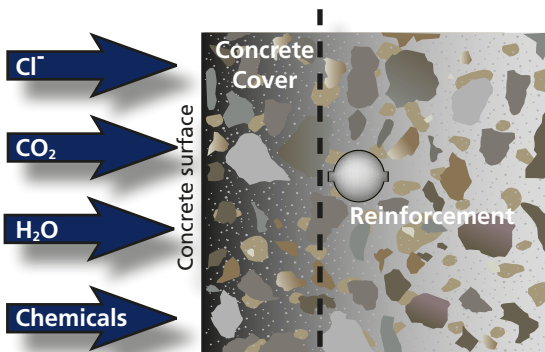
Which parameters are important and why?



## Concrete enhancements

**Minimum average 70% decrease of carbonation depth [1]**

Accelerated test



**Minimum average 60% decrease of chloride diffusion coefficient [1]**

According to NT Build 443.

**Minimum average 90% increase of surface tensile strength [1]**

According to BS 1881 Part 207: 1992 (Pull of test)

## Installation and reuse

Place the CPF liner over the cleaned formwork face and fix it in accordance with the supplier's guidelines. Clean the formwork prior to fixing the liner. Do not use release agents neither on the CPF or on the backing formwork or in any other process when using CPF.

The CPF liner should not be used more than twice to ensure improvements apart from visual. If the liner is damaged or visibly clogged with cement particles after first use, discard or repair it. Otherwise do not remove or clean the CPF from the form between first and second use.



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