



Formtex[®] Controlled Permeability Formwork Liner

Durability in Design

- Marine structures
- Bridges and tunnels
- Water treatment plants
- Pre-cast concrete units

Formtex® Controlled Permeability Formwork Liner

Based on more than 25 years of experience, Formtex® Controlled Permeability Formwork (CPF) Liners are recognised for providing a cost-effective method of improving the durability and surface finish of cast concrete.

Using CPF liners can potentially double the lifetime of concrete structures.*

When compared with equivalent concrete cast without the product, concrete cast against CPF has enhanced resistance to carbon dioxide, ingress of chloride ions and frost attack, reduced permeability, enhanced surface tensile strength and improved surface hardness.

Formtex® – how it works

Formtex® is a two-layer CPF liner consisting of a drainage layer allowing water and air to escape and a filter layer with pore size designed to retain cement particles.

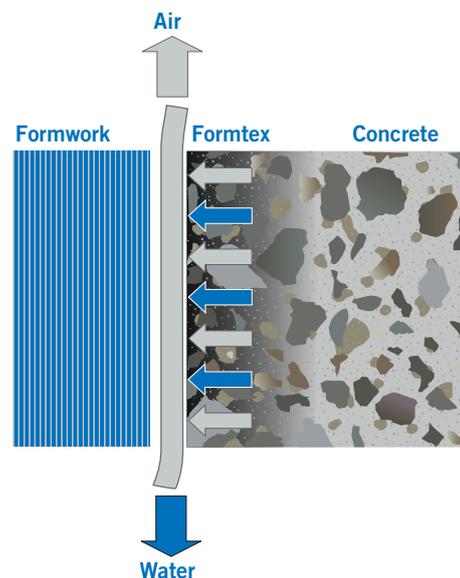
The main function of the Formtex® CPF liner is to drain surplus water and air from the surface of freshly poured concrete during compaction. When water is drained, the water/cement (w/c) ratio in the concrete cover is reduced, providing for denser and stronger concrete, which improves the durability of the concrete considerably.

Formtex® is available in two versions

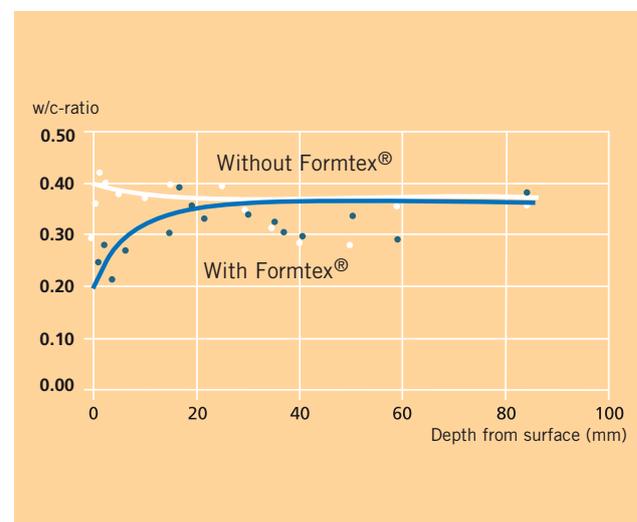
Formtex® PSA is self-adhesive, providing for fast and easy mounting. The self-adhesive backside is covered with a siliconised plastic foil, making it possible to place the Formtex® liner on the form and remove the foil without tensioning or misplacing the CPF liner, thus preventing folds or poor joints.

Standard Formtex® is mounted using stapling on the back of the form in one end and using a tensioning device on the other end. Alternatively, special glue is available for manually gluing the CPF liner to the form. Gluing generally provides for easier mounting without folds and poor joints.

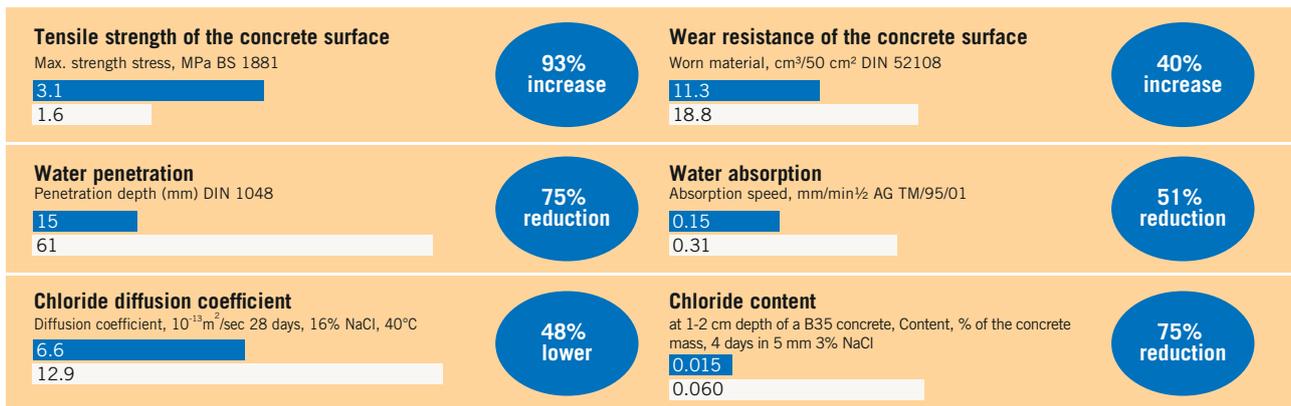
* Comparative performance of chloride-attenuating and corrosion-inhibiting systems for reinforced concrete, M.J. McCarthy, A. Giannakou and M.R. Jones, 2004.



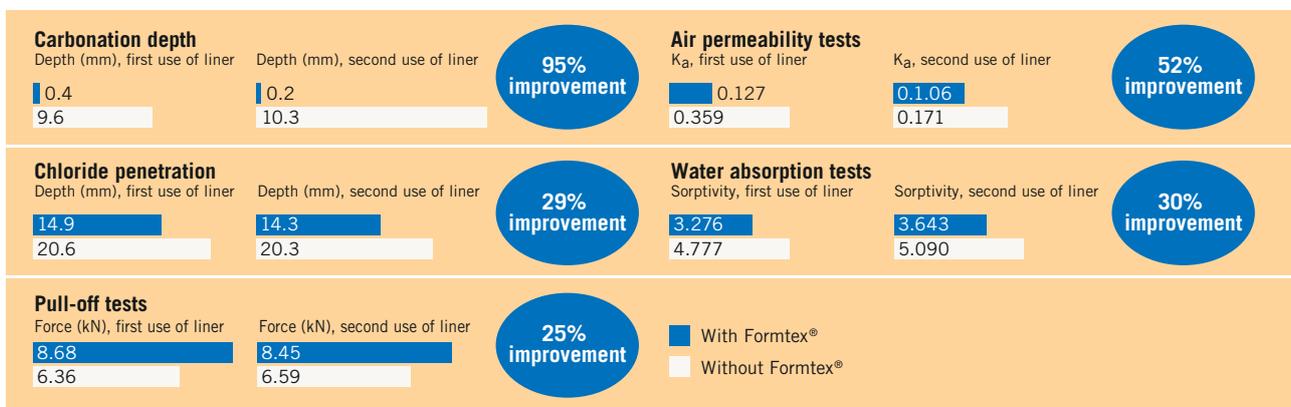
Reduction of w/c ratio with Formtex®



Concrete quality test comparisons ■ With Formtex® □ Without Formtex®



The effect of reusing Formtex®



Formtex® – the advantages



Long lifetime of concrete structures
 Laboratory and field testing has proven that the use of Formtex® CPF liner significantly increases the lifetime of concrete structures, while at the same time significantly reducing maintenance costs. Theoretically, the time until initial steel corrosion is potentially doubled.



No release agents
 Formtex® is certified by Hygiene-Institut des Ruhrgebiets to reduce microbacterial growth on materials that come into contact with drinking water according to DVGW Technical Standard W 270.



Graffiti "easy to remove" surface
 The dense and strong concrete surface reduces the penetration of graffiti media, making it easier to remove.



Reduced repair of concrete surfaces
 Formtex® significantly reduces blowholes and other blemishes on the concrete surface to be repaired after the form is removed. The strong and dense concrete cover without dust and use of release agents provides for an ideal base of further surface treatment – or provides an ideal base for coatings.

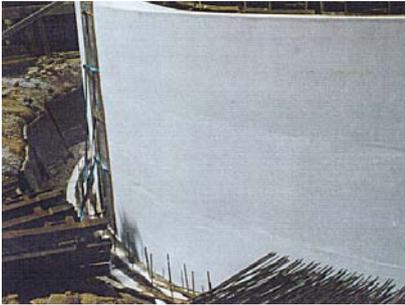


Easy to use
 Formtex® CPF liners are tensioned or glued to vertical or inclined surfaces. Once attached, concreting is performed as usual. CPF liners easily debond from the concrete during formwork striking. Reuse is normally possible.



Certified and technically proven
 Formtex® CPF liners have been proven through more than 25 years of experience. Extensive documentation, certificates and references are available on request.

Formtex® Case Studies



Water tank*, Grossglattback, Germany

Formtex® CPF liner provided for a denser and smooth concrete surface without the use of release agents. Reduced risk of microbial growth could be documented and cleaning of the tank was simplified.*

* DVGW Certified for use in drinking water application.



Crash barrier, Zürich, Switzerland

The complex structure with inclining surfaces typically results in many blowholes and surface blemishes requiring extensive repairs after the formwork is removed. Formtex® CPF liner provides for an almost blowhole-free surface with increased resistance to chloride ingress and frost/thaw degradation.



Container Terminal No. 9, Hong Kong

The very large and heavily reinforced structure exposed to high chloride, high carbon dioxide and high moisture levels as well as a hot environment required a dense, yet workable concrete. Formtex® CPF liner provided for a faster and safer workflow. Further, the increased lifetime and lower maintenance costs of the container terminal were decisive factors.



Hangzhou Bay bridge, China

The lifetime and maintenance costs of this prestigious project were decisive for the choice of Formtex® CPF liner. Formtex® CPF liner provided for documented effects to improve the overall quality of the concrete cover layer. Fewer blowholes and improved resistance to ingress of gasses and liquids made Formtex® CPF liner a cost-effective choice.



Waste water treatment plant, Canada

The requirement for a smooth concrete surface resistant to aggressive substances and cleaning procedures using high pressure water cleaning was met by using Formtex® CPF liner. Typically, the ingress of chlorides, moisture and frost/thaw degradation is reduced by more than 50% with Formtex® CPF liners.



Sheikh Zayed bridge, Abu Dhabi, UAE

Formtex® CPF liner provided for a smooth and resistant concrete cover layer, increasing the lifetime and reducing the maintenance costs of this beautiful bridge. The ability to provide extensive documentation of the CPF effects was in focus.



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By courtesy of Fibertex Nonwovens A/S