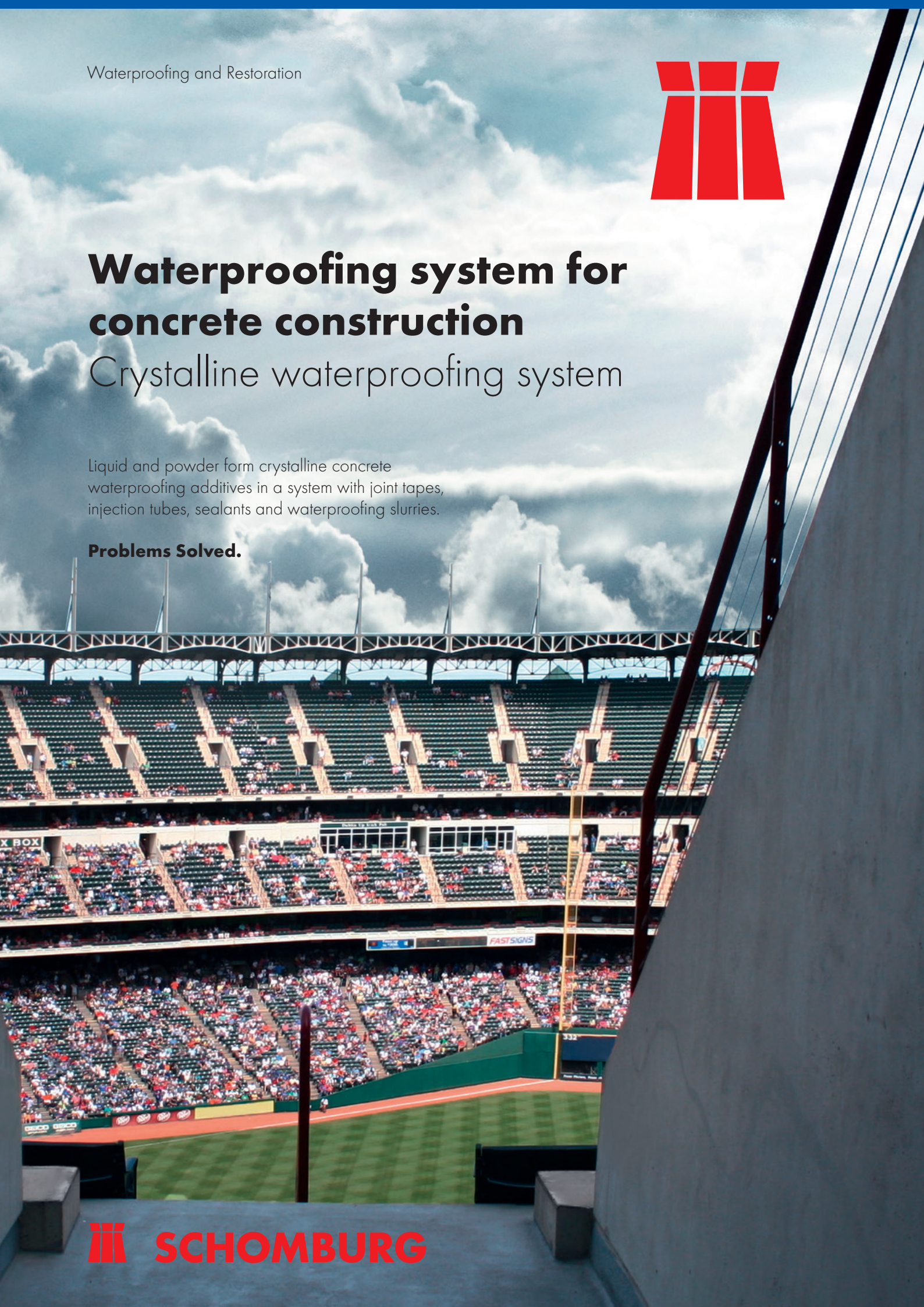
Waterproofing system for concrete construction

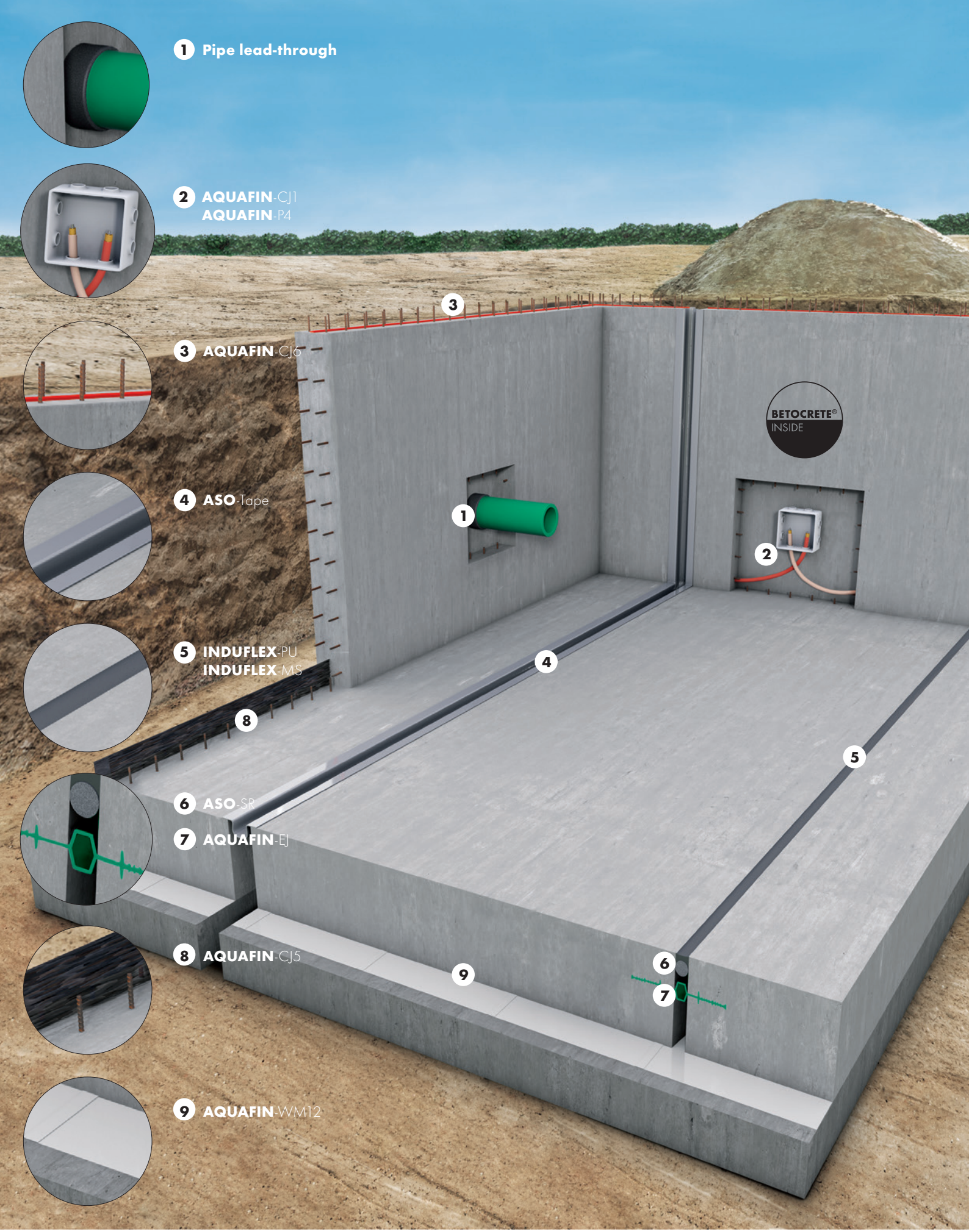
Crystalline waterproofing system

Liquid and powder form crystalline concrete waterproofing additives in a system with joint tapes, injection tubes, sealants and waterproofing slurries.

Problems Solved.



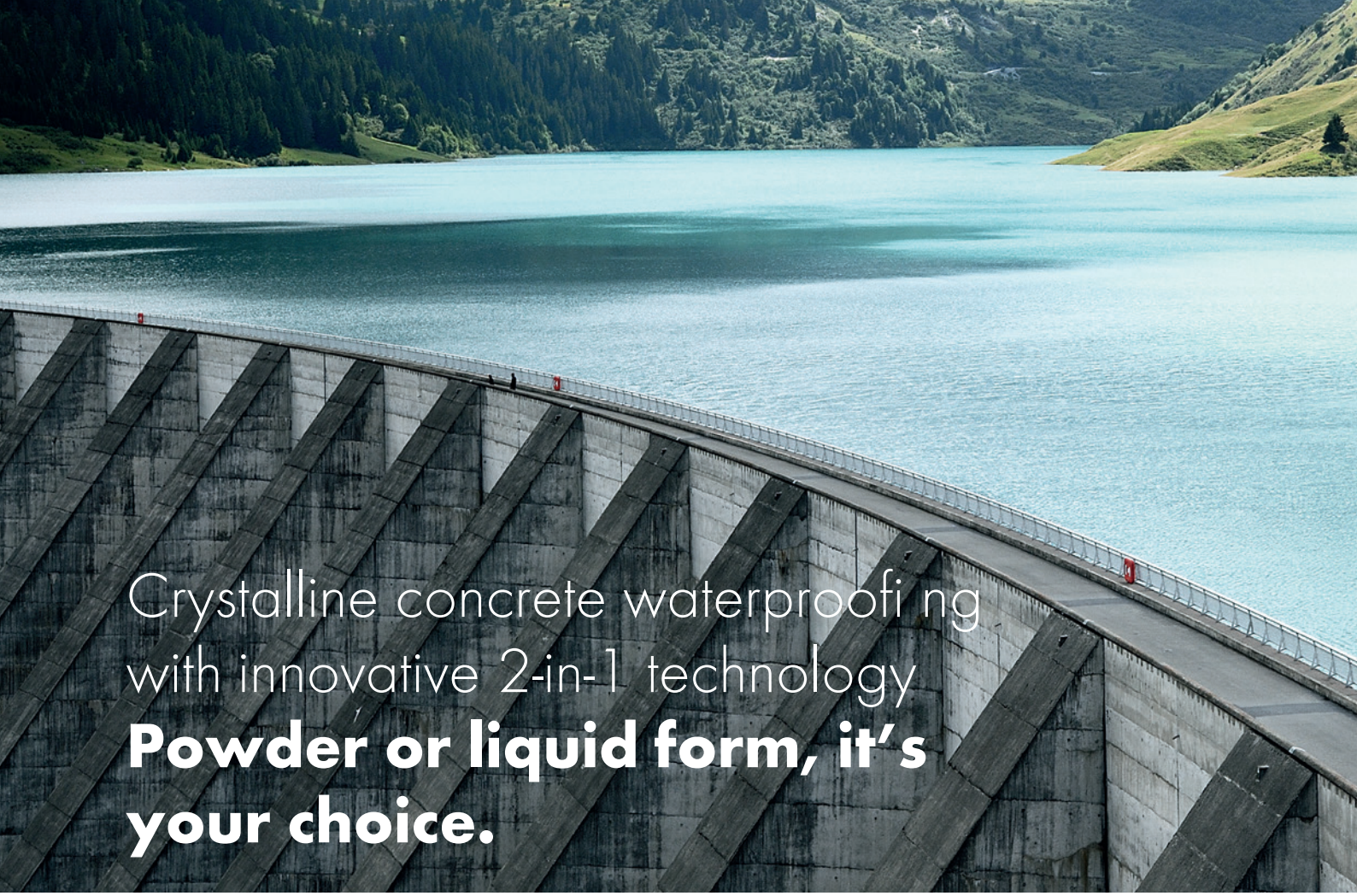
SCHOMBURG


1 Pipe lead-through
2 AQUAFIN-CJ1
AQUAFIN-P4
3 AQUAFIN-CJ6
4 ASO-Tape
5 INDUFLEX-PU
INDUFLEX-MS
6 ASO-SR
7 AQUAFIN-EJ
8 AQUAFIN-CJ5
9 AQUAFIN-WM12
BETOCRETE®
INSIDE

Waterproofing system for concrete construction

Crystalline waterproofing system

Content



Crystalline concrete waterproofi ng with innovative 2-in-1 technology **Powder or liquid form, it's your choice.**

In addition to the usual powder products on the market, SCHOMBURG as a leading supplier, offers liquid products for crystalline waterproofing, which are also certified to DIN EN 934-2. This simplifies dosage and provides maximum certainty when mixing.

Simple dosage has especially proven itself on large volume building projects Automated dosing plants offer even greater advantages regarding application certainty and speed.

Crystalline technology
Crystalline technology reduces water penetration through nano-crystals

Waterproofing agent
Reduces water penetration

Corrosion protection
Additional protection of the rebar

Plasticizer
Reduction of the capillary pore structure

Crystalline technology

Hydrophilic function

- Reaction between in-situ moisture, free lime in the cement and BETOCRETE-C creates capillary sealing nano-crystals in cracks up to 0.5 mm.

Additive technology

Hydrophobic function (WP)

Prevents additional penetration and absorption of water.

Protective function (CI)

Added protection of the rebar by adding an additional, corrosion inhibitant component.

Plasticizing function (P, S)

A plasticizer can lower the w/c ratio and consequently the penetration depth of water by reducing the size of the capillary pores.

Liquid products (CL)

BETOCRETE®
CL-210-WP

Waterproofing agent
(CE certified)

BETOCRETE®
CL-170-P

Plasticizer (CE certified)
Reduction of the w/c ratio

Powder-based products (CP)

BETOCRETE®
CP-360-WP

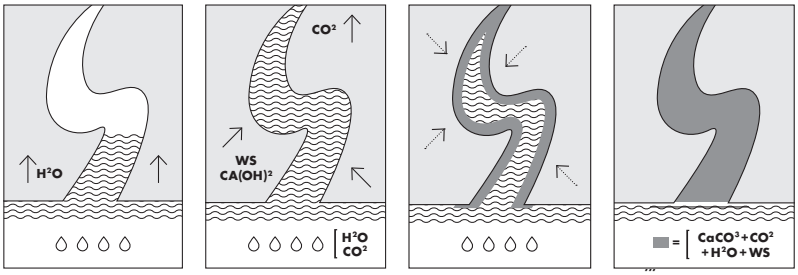
Waterproofi ng agent
(CE certified)

BETOCRETE®
CP-350-CI

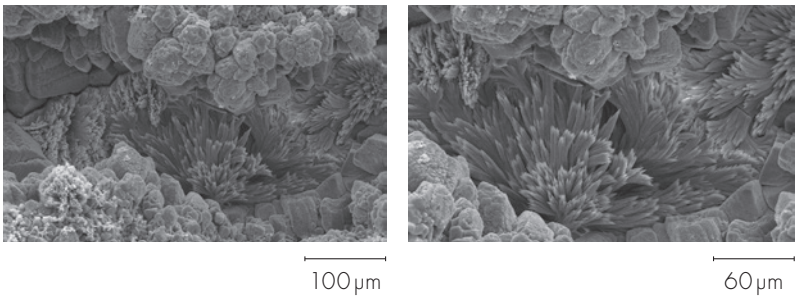
For standard concrete

Advantages

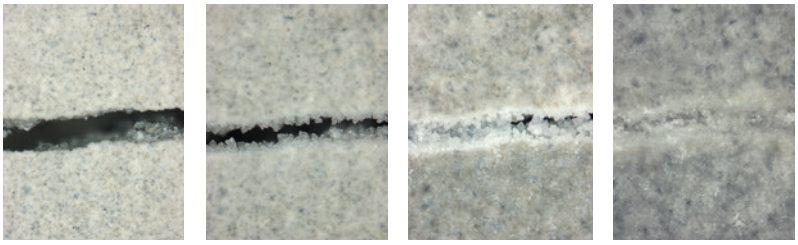
Reduction in water penetration
The use of BETOCRETE-C products reduces water penetration by up to 80 %. Testing by independent institutes have shown a reduction of water penetrations from 25 mm to 5 mm. The water vapour permeability is also lowered by around 10 times.



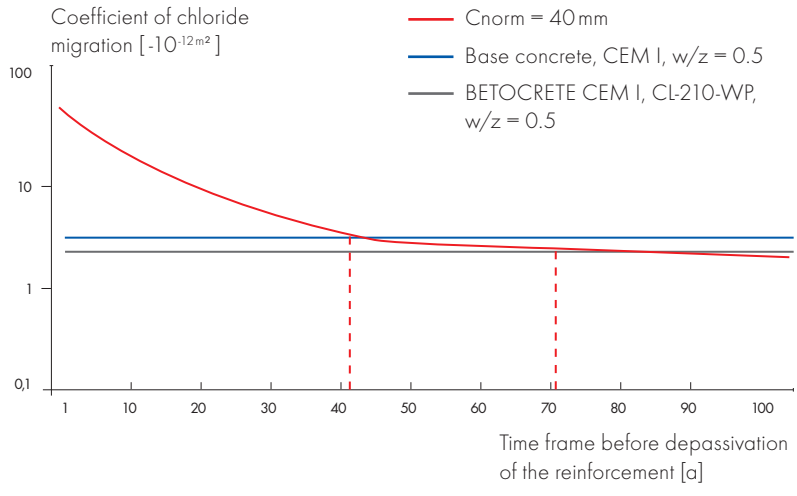
Improving the durability
As water is the main transport medium for damaging substances and also induces chemical reactions in concrete, the BETOCRETE-C Series consequentially improves the permanence of the concrete. In particular independent test certificates prove a considerable improvement in resistance to carbonisation, chloride migration, freeze-thaw cycles as well as chemical influences.



“Self healing” concrete
With each new contact with water, the active ingredients form new crystals – and still carry on after many years. Extensive tests show that products in the BETOCRETE-C series are capable of achieving an auto-reactive, crack-healing function with in case of outwardly spreading cracks up to 0.5 mm and continuous cracks up to 0.4 mm. This speeds up and improves the self-healing properties of concrete and lowers the maintenance costs of the building.



Extending the longevity
Waterproofing with BETOCRETE-C products can extend the life-span of buildings by up to 75 %. The time until depassivation of reinforced concrete can be delayed by up to 30 years. An increased return on investment!



Areas of application – Security for architects and applicators

The BETOCRETE-C series is the first choice for all concrete structures, which come into contact with water, especially for large projects.

Collecting and retaining basins

Parking garages and car park levels

In ground swimming pools

Power station cooling towers

Foundations

Tunnels and concrete pipes

Tanks and containers

Sewage ducts and shafts

Exposure class to EN 206-1	**Damage**	**Damage symptoms**	**How BETOCRETE-C helps**
XF (Frost attack)	• Volume increase water/ice • Increased capillary absorption	• Weathering near the surface • Internal matrix damage • Localised spalling	• Reduces capillary absorption • Reduces moisture ingress • Capillary closure through crystallization
XD/XS (Chloride)	• Entry of structurally damaging chlorides • Steel corrosion	• Damage or decay of the reinforcement • Loss in structural load-bearing strength	• Reduces moisture ingress and the chlorides dissolved therein • Clear reduction in chloride migration
XC (Carbonisation)	• Carbonation (Depassivation) • Reduces the pH value	• Damage or decay of the reinforcement • Spalling through volume increases from rust	• Reduced moisture ingress • Clear reduction in carbonisation
XA (Chemical attack)	• Chemical decay of the concrete structure	• Heavy destruction near the surface • Internal matrix damage	• Reduction in chemicals dissolved in moisture through capillary filling crystals

Advice for planning

Concrete requirements*	
Cement content	Min. 270 kg/m³ CEM I; 290 kg/m³ CEM II; 380 kg/m³ CEM III/A
Fly ash	Max. 80 kg/m³
Granulated blast furnace slag	Max. 100 kg/m³
w/c ratio	< 0.55
Particle size	16 mm, in exceptional cases 32 mm
Construction thickness	The construction thickness should not be below 15 cm

* Dependent on the necessary exposure class as well as the content of fly ash and/or granulated blast furnace slags – excluded BETOCRETE-CP355-CI. Further information can be found in the current technical data sheet.

Advice for application

	BETOCRETE® CP	**BETOCRETE®** CL
Dosage*: w/c ratio		
< 0.4	0.75 % based on CEM	1.75 % based on CEM
> 0.4–0.5	0.80 % based on CEM	1.85 % based on CEM
> 0.5–0.55	0.95 % based on CEM	2.00 % based on CEM
Preparation		
At a concrete plant	BETOCRETE-CP is to be dosed with the aggregate and mixed for at least 30 seconds prior to the addition of water and cement. Then finish mixing for at least 45 seconds before it is ready for use.	BETOCRETE-CL can be added to the mixing water or introduced into the finished concrete mix.
On the construction site	The addition of BETOCRETE-CP on the construction site (ready-mix truck) is as an aqueous suspension. The amount of BETOCRETE-CP necessary is pre-mixed with water at a ratio of 1:1. The secondary mixing time should be 1 min/m³ of drum contents but at least 5 minutes. Refer to the recipe development for the necessary amount of water. (With BETOCRETE-CP360-WP, mixing with water is not necessary, it can be dosed directly).	Add BETOCRETE-CL directly to the mixing drum and then mix for 1 min/m³ drum contents but for at least 5 minutes.

* Dosage is dependent on the cement content used as well as the w/c ratio of the appropriate concrete recipe. The tabular overview serves as a guide. Preliminary trials are always required.

Green SCHOMBURG
Environmental protection is an integral part of each solution

SCHOMBURG combines assured solutions with commercial success and the protection of the environment. We stand by sustainability along the entire value chain and set strict tests for our products and partners.

An overview of the system advantages “Secure waterproofing of concrete constructions” for sustainable building:

- Low emissions and VOC free products for hazard free use
- The use of low emissions and recyclable binders through special product properties
- Improvements to durability, ensures long safe use and leads to low life cycle costs
- Lower heat loss and improved air quality through dry buildings
- 100 % recyclable through integral waterproofing
- Saving of water and additional plasticizers
- Lower cement consumption lowers the whole energy demand
- Reduction of maintenance and repair costs through self-sealing of water carrying cracks and an auto-reversible sealing process

These and other properties allow you permanent increases in value of your property.

If you have questions on the certification of your building with our products, simply speak with us.