



Technical Data Sheet

BETOCRETE®-C18

Crystalline waterproofing, retarding & high-range, water-reducing, super plasticizing concrete admixture

Product Description:

BETOCRETE-C18 is an integral crystalline waterproofing, retarding & water-reducing admixture based on a blend of synthetic polymers and proprietary ingredients formulated to produce a unique "permanently active" waterproof, highly durable & flowable concrete.

Once administered, BETOCRETE-C18 is adsorbed onto the cement particles of the concrete mix introducing a powerful deflocculating behaviour that effectively reduces water demand, increases both early & ultimate strengths and significantly improves both physical & mechanical properties of the resultant concrete. The active ingredients - in presence of moisture/water - react with by-products resulting from the cement hydration to create insoluble crystalline formations throughout the pores and capillary matrix of the concrete. Fully cured BETOCRETE-C18 concretes exhibit a significant reduction in water penetration limiting it to the first few millimeters from the surface. The hardened concrete is thus resistant against deeper water penetration and any soluble salts that may be detrimental to the concrete or reinforcement steel.

Future static cracks (up to 400 microns) developed in the concrete due to settlement, shrinkage or similar effects are automatically filled with fresh crystal formations once exposed to moisture or water, hence the structure's waterproof properties are reinstated.

Primary Uses:

BETOCRETE-C18 is used to produce cast-in-situ crystalline waterproofed concretes where high water reduction and extended workability times are required. Typical applications include:

- Water-retaining structures like potable water tanks and reservoirs, sewage treatment plants and septic tanks.
- Water excluding structures like dams, retaining walls and elevator pits.
- Tunnels and under passes.
- Waterproofed basements & foundations.

- Marine structures like quay walls, piers, dry docks and ship building yards.
- Mass concrete works.

Advantages:

- Permanently active, long-term, waterproof solution.
- Self seals – upon exposure to moisture/water – static cracks up to 400 microns.
- Denser concrete, improved water tightness & protection to reinforcement from water-borne salts.
- Effective reduction of mixing water (up to 30 %)
- Withstands high water pressures (up to 14 bars).
- Improved workability, placing & pumping.
- Liquid form: easy, lump-free dispensing & dispersion.
- Improved physical & mechanical properties of concrete.
- Improved surface finish.
- Reduced risk of segregation, shrinkage, bleeding & creep.
- Water-based, non-flammable, non-toxic, chloride-free and non-corrosive.

Standards:

BETOCRETE-C18 complies with the requirements of:

- EN 934 Part 2 Table 9
- ASTM C- 494, Type G
(EN 943 Part 2 Tables 1, 11.1 and 11.2)
- IS 9103

Typical Properties:

Appearance:	Clear to hazy liquid
Specific Gravity:	1.28 ± 0.005 @ +20 °C
Air-entrainment:	Less than 1 % additional air is entrained.
Chloride content:	Nil
Setting Times:	Initial & final setting times will be extended when used at the recommended dosages and depending on mix design.
Permeability:	Resultant concrete is permanently waterproofed against water ingress through

BETOCRETE®-C18

Water-reduction:	static cracks up to 400 microns. Up to 30% reduction of mixing water
Compatibility:	Compatible with all types of Portland cement including SRC.
Mechanical properties:	All mechanical properties, early & ultimate compressive strengths, flexural strengths, tensile strengths will improve.

Dosage Range:

Dosage is influenced by cement type, mix design, quality of used materials, ambient temperatures and specific requirements. Site trials must always be carried out to determine optimum dosage.

Dosage: Typically between 2.0 – 3.0 % by weight of cement.

Dispensing:

BETOCRETE-C18 should be added to the mixing water or directly to the mixed concrete. Do not add directly to the dry mix or cement. For proper administration an automatic dispenser is recommended.

Overdosing:

An overdose of BETOCRETE-C18 may result - depending on dosage - in increased workability and extended setting time. Overdosed concrete must be protected against direct sunlight and water evaporation.

Curing:

Concrete should be cured in accordance to applicable European Norms or ACI recommendations. Alternatively use any of the SCHOMBURG curing agents range; REMICURE.

Cleaning:

Dispensers, hoses, equipment and tools are easily cleaned with water. Spills must be contained and removed to industrial waste in accordance with local environmental laws. Please always consult local legislative authorities.

Packaging:

BETOCRETE-C18 is supplied in 20 litre pails, 200 litre drums and 1,000 litre IBCs.

Storage & Shelf-life:

BETOCRETE-C18 in original unopened containers has a shelf-life of 18 months when stored in a dry and frost-free environment above +15 °C.

Special Advice:

- Concrete modified with BETOCRETE-C18 may tend to effloresce depending on mix design.
- It is recommended to perform compatibility tests with other admixtures as required.
- Aggregates should have a continuous sieve-line.
- When using CEM II or CEM III grades the long-term efficiency of BETOCRETE-C18 may be restricted in special cases as well as when pozzolanic concrete additives are used.

Health and Safety:

- BETOCRETE-C18 is non-flammable, non-toxic & non-corrosive.
- Splashes should be washed with water
- For ecology, follow the local regulations.
- BETOCRETE-C18 is not dangerous during transportation.