

TECHNICAL INFORMATION

TOPROC ED (EARLY DRY)

A readymix concrete specifically designed to dry to 75% relative humidity quicker than conventional concrete

PRODUCT DESCRIPTION

Toproc ED is a high performance readymix concrete specifically designed to provide a relative humidity at its surface of below 75% as early as possible. Toproc ED is a very cohesive concrete with a dense micro structure and improved bond between paste and aggregate, imparting benefits including high early and ultimate strength, reduced permeability and increased durability and early drying.

APPLICATIONS

- Flooring applications
- Bridge decks
- Underpass soffits
- Supermarket floors
- Any other applications where early drying of the surface is required to allow further coating to be applied

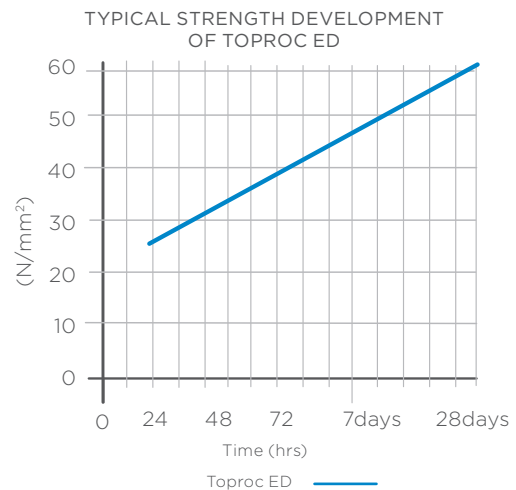
KEY FEATURES OF TOPROC ED

FRESH CONCRETE

- Easy to pump
- One pass finishing
- Increased cohesion
- Virtually no bleeding
- Less prone to segregation

HARDENED CONCRETE

- Early drying
- High early compressive strength
- Improved ultimate compressive strength
- Low permeability
- Improved durability
- Low water/cement ratio



24 HOUR COMPRESSIVE STRENGTH

Toproc ED typically achieves a 24 hour compressive strength of 25-30N/mm², but can often achieve in the range of 35-40N/mm².

28 DAY COMPRESSIVE STRENGTH

Toproc ED typically achieves a 28 day compressive strength of 60N/mm², but can often achieve in the range of 75-90N/mm².

Cube strengths based on 100mm cubes made and cured in accordance with BS EN 12390-2.

PERMEABILITY/DURABILITY

Due to its very cohesive nature Toproc ED allows very little, if any, bleed water to migrate to the surface. Combined with a dense micro structure it results in a concrete with low permeability. The effectiveness of concretes to resist the ingress of water, gases, chloride/sulfate solutions and aggressive liquids depends to a high degree on their impermeability. As a consequence the low permeability of Toproc ED helps slow the ingress of these substances when compared to a typical RC32/40 concrete. This, combined with a very low water/cement ratio means Toproc ED will improve the concrete's durability to a variety of conditions including weathering, chemical attack, abrasion and freeze/thaw attack.

EARLY DRYING

The accelerated drying property of Toproc ED and the use of specific admixtures is a function of its very low water/cement ratio. Most of the water in the concrete is taken up by the hydration reaction and very little free water is left which could effectively leave the concrete. As a result of this, when compared to a RC32/40 concrete the time taken for the surface of a Toproc ED to reach 75% humidity is significantly quicker. The rate at which moisture leaves concrete depends on various ambient conditions. In order to achieve the fastest possible drying time remove any sources of external moisture soaking into the concrete, either through the top surface or from water diffusing into the slab from damp ground and by keeping the ambient humidity as low as possible.

SHRINKAGE

Plastic shrinkage - Toproc ED is more susceptible to plastic shrinkage cracking due to the lack of bleed water. While the polypropylene fibres in the mix will help, correct curing is essential (see curing). Long-term drying shrinkage - similar to that of conventional concrete.

PUMPABILITY

Toproc ED can be pumped more easily than conventional concretes and is typically delivered at an S3 consistence.

TYPICAL DENSITY

Approximately 2,400 kg/m³.

TYPICAL AIR CONTENT

0.5 to 1.5%.

PLACING, COMPACTING AND FINISHING

The cohesive nature of Toproc ED means that it releases very little, if any bleed water. The lack of bleeding means that finishing can commence immediately after compaction has been completed without having to wait for bleed water to evaporate. If a power floated finish is not required then a 'one pass finish' can be employed to significantly speed up construction time.

Toproc ED can be vibrated by any of the conventional means, but as with all concretes it is essential that Toproc ED is vibrated fully to ensure good compaction.

It can be finished in a similar manner to conventional concrete, except that wooden equipment (beams and floats) may drag on the surface.

Toproc ED can be laser screeded, however, we suggest the use of a reputable flooring contractor whose operators are familiar with the product and system.

Toproc ED can be power floated as normal, however, correct curing is essential (see curing).

CURING

As with all concretes, proper curing is essential to ensure that all the benefits of Toproc ED are achieved. It is essential that curing should start as soon as possible, ideally within 10-15 minutes of placing to reduce the probability of plastic shrinkage cracking.

If a power floated finish is required, appropriate curing of the concrete is recommended during the interval between initial floating and application of the final trowelled finish.

All normal curing methods are acceptable, but the most effective curing is best achieved by using spray-on curing membranes such as 90% efficiency resin based compounds or acrylic sealers, as these can be applied earlier in the construction process. However, the use of spray-on curing membranes may increase the time taken for the concrete surface to reach 75% RH, so an alternative method of curing may be more appropriate such as covering with plastic sheeting.

PACKAGING AND DELIVERY

Toproc ED is supplied in readymix form:

- Readymix trucks up to 8m³
- Minimix trucks 2 to 3m³

BESPOKE FORMULATIONS

In the past where the need has arisen to formulate a product to meet a specific application, Tarmac has worked alongside customers to achieve design requirements. Toproc ED can also incorporate macro fibres within the mix.

Please email toproc@tarmac.com.

TYPICAL SPECIFICATION STATEMENT

The concrete shall be Tarmac Toproc ED in accordance with BS 8500-2.

The maximum aggregate size and consistence shall be agreed between the specifier and Tarmac.

The concrete shall be placed, compacted and cured in accordance with current good practice, the specification for the contract and any additional requirements from Tarmac.

For more details visit
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