TARMAC

TECHNICAL INFORMATION

TOPROC

A high performance readymix concrete

PRODUCT DESCRIPTION

Toproc is a high performance ready mixed concrete offering clients, specifiers and contractors solutions to a wide variety of construction requirements.

The in-situ compressive strength of Toproc is much higher than conventional concretes typically achieving 20-25N/mm^2 at 24 hours, 60N/mm^2 at 28 days although this is often exceeded and can often reach 70N.

Toproc is normally laid in excess of 100mm in depth. For applications requiring less than 200mm, consult your local Readymix sector office.

APPLICATIONS

Toproc is available in a range of proprietary formulatios suitable for many specific applications. Toproc is ideal for most industrial, commercial and infrastructure construction and repair uses. Toproc offers high surface strength and low dust properties, which can often negate the need for paint or resin surface finishes.

KEY FEATURES OF TOPROC CR COMPRESSIVE STRENGTH

Toproc's in-situ compressive strength is much higher than conventional concrete achieving typically 20-25N/mm^2 at 24 hours, depending on section size and ambient temperature at time of laying.

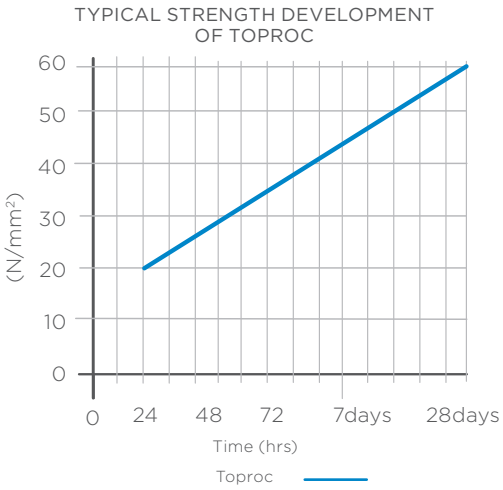
Such strength development saves on programme time for clients and contractors.

INCREASED 7 DAY STRENGTH

Compared to conventional concrete, Toproc can offer considerable time saving. The strength gain between 7 and 28 days in laboratory conditions is in the region of 20%.

28 DAY STRENGTH

28-day compressive strength is typically circa 60N+/mm^2 based on 100mm cube tests.



FLEXURAL STRENGTH/ MODULUS OF ELASTICITY

Higher flexural strength and modulus of elasticity can be achieved compared to conventional concrete.

EARLY ACCESS

As most of the water in the concrete is hydrated rapidly, very little is left to migrate to the surface. This is highly desirable for early strength gain often allowing trades to access the concrete much earlier.

In most instances, the concrete can be lightly trafficked after 24 hours.

DURABILITY

Toproc exhibits less wear and greater resistance to impact than conventional concrete, thereby reducing the life cycle costs of wearing surfaces in scrap yards, loading bays, stores and other heavy industrial environments.

When tested a typical machine finished sample of Toproc demonstrated that it was capable of reducing the depth of wear by 40% when compared to a typical RC32/40N concrete.

A typical Toproc concrete, when tested, demonstrated that it was capable of increasing the impact until first crack by up to 30 times when compared to a typical RC32/40N concrete.

PUMPABILITY

Toproc can be pumped more easily than conventional concretes as the inclusion of pozzolans improves it's pumpable properties.

LASER SCREEDING

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

PERMEABILITY

Due to the dense matrix typical of Toproc concretes, Toproc allows very little bleed water to migrate to the surface and demonstrates extremely low permeability when in contact with water, oxygen and carbon dioxide.

When tested in accordance with the Taylor Woodrow method, a typical Toproc concrete demonstrated that it was capable of reducing the resistance to liquid water under pressure by up to 90% when compared to a typical RC32/40N concrete.

When tested in accordance with the Taylor Woodrow method, a typical Toproc concrete demonstrated that it was capable of reducing the diffusion of oxygen by up to 17% when compared to a typical RC32/40N concrete.

As a result, Toproc is more resistant to staining than conventional concrete (it is always advisable however to clear away any spillage as soon as possible.)

CARBONATION

Toproc's resistance to carbon dioxide ingress significantly reduces the rate of carbonation effectively delaying the onset of rebar corrosion thus reducing maintenance costs and extending the lifetime of the construction.

TYPICAL DENSITY

Approximately 2400kg/m_3

TYPICAL AIR CONTENT

0.5 to 1.5%

PLACING, COMPACTING AND CURING

Toproc concretes release very little if any bleed water. This lack of bleed water contributes to Toproc's exceptional abrasion resistance.

In addition finishing can commence immediately after compaction has been completed without having to wait for bleed water to evaporate, thus dramatically reducing the time taken to place the concrete.

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

Good curing practice should start as soon as possible after finishing to reduce the probability of plastic shrinkage. All normal curing methods are acceptable, but the use of a spray on curing membrane is recommended as these can be applied earlier in the construction process.

Toproc should be compacted, finished and cured as soon as possible. It is not difficult to achieve, as delays waiting for bleed water to rise prior to finishing are NOT required. Hence, Toproc should be finished quicker compared to conventional concrete.

PACKAGING AND DELIVERY

Toproc is supplied in readymix form:

- Readymix trucks up to 8m^3
- Minimix trucks 2 to 3m^3

CASE HISTORIES

Toproc was first registered as a trade mark in 1991, since then Tarmac has built up a portfolio of case histories relevant to specific applications. These are available on our website, TARMAC.COM.

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.

ADDITIONS TO THE CONCRETE

Tarmac's clients often request that additional constituents are added to Toproc concrete formulations. Careful consideration will be given to all requests to achieve the desired level of performance.

AVAILABILITY

All Toproc products are readily available across mainland UK from Tarmac's network of ready mixed concrete plants. The concrete is delivered to site in ready mixed concrete trucks at a consistence suitable for the application, but generally at a higher consistence than conventional concrete, which, together with Toproc's unique properties, makes Toproc easier to pump, place, pour etc

Before using Toproc, reference should be made to the Toproc Placing, Compacting and Curing guide.

Tarmac offer a unique information and advisory service for all applications and type of concrete to assist users and specifiers of concrete to solve problems and optimise the benefits available from Tarmac's unique range of special products.

PHYSICAL PROPERTIES

All physical properties stated for Toproc's Products are typical values due to local variations in the naturally occurring constituent materials. This information is based on our considerable experience with these products and is given with the best of intentions to assist customers in obtaining the best performance from our products.

TYPICAL SPECIFICATION STATEMENT

The concrete shall be Tarmac Toproc in accordance with BS8500-2.

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 of Tarmac.

OTHER TOPROC CONCRETES

Toproc is only one of the many formulations in the extensive Toproc range available from Tarmac. For details of other products in the Toproc range, please contact your local Readymix sector office.

TECHNICAL ADVISORY SERVICE

Tarmac employs a team of specialists who would be very pleased to advise or work closely with contractors as required.

PRECAUTIONS OF USE

SAFETY

There is real danger of contact Dermatitis or serious burns if skin comes into contact with wet cement mixes such as fresh concrete, mortar or screed. Wear suitable protective clothing and eye protection. Where skin contact occurs either directly or through saturated clothing was immediately with soap and water. For eye contact, immediately wash out eyes thoroughly with clean water. If swallowed was out mouth and drink plenty of water.

For more details visit
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TARMAC.COM