TARMAC

TOPROC

The ideal high performance concrete

ULTIMATE SOLUTIONS

Tarmac Toproc delivers high optimal strength and performance in the most challenging environments.

In harsh conditions, the need for high strength, high performance concrete is obvious. In many applications such as underwater construction and high trafficked areas erosion-prone concretes are not an option, while the use of inferior strength products result in costly repair work within years.

To meet this challenge Tarmac offers a range of high performance concretes, which remain the most technologically advanced on the market.

Providing exceptional strength and ultimate abrasion resistance, there are six ready-formulated Toproc products available.

Bespoke formulations can also be designed to meet specific requirements.

TOP STRENGTH
Toproc can incorporate macro fibres to remove 'A' grade crack control mesh

Exceptional in extreme temperatures and environments
Resists extreme temperature and corrosives such as chemicals, acids, seawater and de-icing salts.

Commercially sound
Proven to outlast conventional concretes in environments subjected to high impact and abrasion resulting in reduced whole-life costs.

Faster curing and extreme toughness
Toproc gains strength in hours, not days and on average will gain 25N strength in 24-48 hrs compared to a C40N concrete, which typically gains 40N strength in 28 days. The average strength of Toproc is 60N+/28 days.

The Green Agenda
Toproc is a sustainable product that outperforms conventional concretes in similar in-situ applications.

Faster construction time
Dries in weeks not months, so it can be worked on soon after placement helping to dramatically cut programme times and costs. Also designed to provide a relative humidity at its surface of below 75%.

Specifically tailored
The Toproc range provides customers with a bespoke designed high strength concrete and additional benefits which conventional concretes cannot provide. It can also be combined with macro fibres to remove 'A' grade crack control mesh.

Health and safety
No special handling technique is required, however good general concrete practice should always be followed.

Well established and successful history
Toproc was launched in 1990 and has a proven track record and case history in a variety of applications.

TOPROC CONCRETES

- The main constituent of Toproc is a 'waste' material from the silicon manufacturing industry
- Toproc's low permeability enables collection and management of surface run-off
- Toproc can outperform conventional concrete 3-4 times over in similar environments therefore offering a reduction in replacement or maintenance costs and increasing the life of the concrete application
- Toproc UW's low permeability decreases alkali leaching into marine or water environments
- Toproc is resource efficient and is designed to contain secondary materials, such as replacement cements or aggregates
- Toproc can be designed to offer faster concrete setting times, reducing disruption and cost for any construction project

AVAILABILITY

TOPROC

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

Tarmac offer a unique information and advisoryservice 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.

TOPROC'S RESISTANCE

In addition to exceptional durability Toproc also offers advanced stain resistance.

TOPROC

Toproc is available in a range of proprietary formulations 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.

Toproc's in-situ compressive strength is much higher than conventional concrete achieving typically 20-25N/mm2 at 24 hours, depending on section size and ambient temperature at time of laying.

TOPROC UW – Under Water

- High consistency, high strength concrete
- Wash-out reduced by up to 50%
- Scour and wear resistant when hardened
- Less harmful to flora and sea life

Applications: all underwater constructions, bridges, water defences, wind farms, oil rigs

TOPROC MF – Macro Fibre

Provides high strength and eliminates 'A' grade crack control mesh

- Increased strength and crack resistance
- Reduces costs over a longer lifetime

Applications: heavy industrial floors, external hard standings, recycling plants, retail flooring

TOPROC SY – Scrap Yard

- Extreme abrasion/wear resistance
- Wide joint spacing possible
- Resistant to continuous shock loading
- Excellent initial impact and post-crack performance
- Can eliminate 'A' grade crack control mesh

Applications: scrap yards, recycling plant floors, industrial flooring, docksides, loading bays

TOPROC ED – Early Drying

- Quicker drying than conventional concretes
- Concrete can be walked on after just 18 hours
- Can be trafficked by light vehicles after 24 hours
- 75% relative humidity within 7-21 days (depending on ambient temperature)

Applications: flooring, bridge decks, underpass soffits, resin toppings and tiles, retail spaces

TOPROC CR – Chemical Resistant

High resistance to a variety of chemicals

- Less wear in high abrasion environments
- Reduces costs over longer lifetime

Applications: chemical works, effluent treatment plants, waste storage, recycling depots

TOPROC HR – Heat Resistant

- Extreme heat resistance
- High bond to concrete and steel
- High strength – compressive, flexural and tensile
- Very low permeability

Applications: foundry floors, molten metal splash areas, fire resistant sections, cladding and coating

TOPROC ES - Early Strength

- Improved bond between paste and aggregate
- Highly cohesive concrete with a dense micro structure
- Earlier access for trafficking

Applications: Heavy industrial applications, Airport runway repairs, Infrastructure construction, Structures under repair, Any other applications requiring high early strength

OUR EXPERIENCE

Asda store, Wakefield.

CHALLENGE

To create a 2,000m² concrete floor area for the new Asda store, in a very short time frame. We needed a fast-drying concrete that would allow a Degussa – a methyl methacrolite based resin floor finish on top - to be applied within seven days of the pour

SOLUTION

We used Toproc ED, with its high-early drying characteristics, to hit the tight schedules, whilst retaining the effectiveness and resilience of the final concrete flooring. On in-situ testing, Toproc ED gave us results of 80% humidity at nine days. We placed the concrete in two pours by pump, each of 110m³. Despite variations in temperature and humidity we achieved fast drying times.

RESULTS AND BENEFITS

Our use of Toproc ED saved time and reduced labour costs on the construction without compromising the quality of the concrete floor itself. With drying times up to four times faster than conventional concrete options, the use of Toproc ED enabled Asda's contractors to apply the floor finish within just seven days of the final pour.

Ministry of Defence training camp, Otterburn.

CHALLENGE

In order to improve their Otterburn training camp, the Ministry of Defence agreed to also enhance the surrounding area in terms of conservation and public access, while keeping disturbance of the lands to an absolute minimum.

SOLUTION

To eliminate the environmental and social impact of truck movements, Lafarge Tarmac installed a site batch concrete plant at the barracks. Over 40,000m³ of Toproc SY was used to upgrade 60km of carriageways and 46 hard standings used for rocket and gunfire. To match the surrounding environment, Toproc SY was produced in Raven Grey colour.

RESULT

The use of high strength Toproc SY ensured the training camp's enhancements were able to withstand the rigours of heavy vehicle trafficking. The concrete's continued durability and resilience has also led to reduced costs for the MoD. The project was completed in 2004.

OPTIMIZED VOLUME

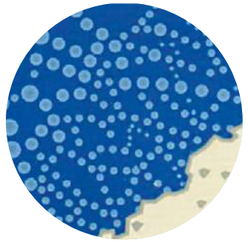
Over 40,000m³ of Toproc SY was used to upgrade 60km of carriageways and 46 hard standings at Otterburn.

HOW IT WORKS

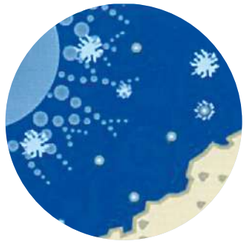
A BRIEF EXPLANATION OF THE TOPROC CHEMISTRY

CONVENTIONAL HYDRATION

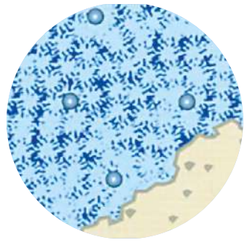
Crystals produced by the hydration reaction grow away from each cement particle during curing.



Finer, stronger hydration crystals develop during the curing process.



Conventional concrete when hydration is complete.



A stronger, impermeable and dense micro structure develops that continually improves over time.

Harnessing the power of tailored admixtures

Key to the exceptional performance, strength, cohesion and durability of Toproc is the presence of tailored admixtures in its mix. These materials provide enhanced resistance to water ingress, chemicals and impact abrasion compared to conventional concrete materials.

Increased strength for harsh environments

Thanks to the presence of specific admixtures, Toproc provides a robust, resilient concrete containing fewer capillary pores than conventional concretes and therefore providing a very dense concrete matrix with low permeability.

MORE ANSWERS

For more information about Tarmac Toproc contact your local regional office or visit tarmac.com/toproc
E toproc@tarmac.com

OUR SUPPORT

FAQs

What is the difference between Toproc and conventional concrete?

Toproc contains a special formulation that creates dense micro structures, improving the bond between paste and aggregate, providing a high strength, high performance concrete suitable for use in harsh environments.

How many Toproc products are available?

There are currently six ready-formulated products available, each with their own feature benefit. These range from early drying to heat resistance, ensuring Toproc is suitable for a wide range of applications.

Are bespoke Toproc products available?

We can design a unique Toproc formulation to meet the specific needs of almost any project. Simply get in touch with us or call the customer helpline.

How does it reduce construction time?

Toproc's rapid strength gain and early drying ensures construction delays are kept to a minimum, even on the most challenging projects.

What are the potential cost savings?

For contractors less time on site means lower labour costs and equipment costs, whilst their customers benefit from high strength, durable constructions that require less repair work over time.

How long will it last?

Naturally, every project is different. However, Toproc has been proven to outlast conventional concretes 3-4 times over in the most challenging applications such as coastal defences and foundry floors.

What are the sustainability benefits?

Thanks to its superior strength and durability Toproc constructions are proven to last longer than those made from conventional concrete therefore providing a more sustainable concrete option. All Toproc products are manufactured in accordance with BES 6001 standards.

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