Brushbond TGP

constructive solutions

Crystalline capillary waterproofing for concrete substrates

Use

Brushbond TGP system is used for waterproofing concrete against positive or negative hydrostatic water pressure, foundation damp-proofing, repairing hairline crack, filling holes and sealing wall-floor joints.

Brushbond TGP will also stop active leaks in most locations variety of concrete structures such as:

- Sewage and water treatment plants
- Water tanks and concrete pipes
- Concrete pipes and tunnels
- Foundations
- Manholes

Advantages

- NSF - certified for use with potable water (ANSI/NSF standard 61)
- Penetrates concrete, seals capillary tracts and hairline cracks
- Concrete remains waterproof even if surface damage occurs
- Cost effective in use
- Effective waterproofing treatment for concrete subject to hydrostatic pressure
- Can be used above or below ground
- Resists chemical attach by sewage, industrial waste and de-icing salts
- Can be applied to new or old concrete in both interior and exterior locations
- Chloride free

Description

Brushbond TGP crystalline capillary waterproofing system is a product which contains a blend of Portland Cement, quartz aggregates and specialised chemicals. In the presence of moisture, the active chemical additives in Brushbond TGP penetrates concrete and reacts chemically with free lime to produce insoluble crystals

This crystalline growth reduces concrete porosity by blocking capillaries and filling hairline cracks up to 0.25mm caused by shrinkage or expansion. Unlike membrane types of waterproofing which only provide a surface barrier the Brushbond TGP continues to produce crystals in the presence of water. Brushbond TGP therefore provides long-lasting impermeability to water.

Brushbond TGP is the basic formulation for waterproofing applications. Brushbond TGP is supplied as a dry shake to newly poured concrete or mixed with water to produce a slurry coating for walls and floors.

Properties

The values given below are average figures achieved in laboratory tests. Actual values obtained on site may show minor variations from those quoted.

Chemical resistant

Weight change: (ASTM C 267)	**3 days**	**7 days**	**28 days**	**56 days**
Control samples	0.0 gm	0.0 gm	+0.1gm	+0.3 gm
Acid exposed	+0.1 gm	-0.2 gm	-1.1 gm	-4.8 gm
Salt exposed	+0.3 gm	+0.8 gm	+0.6 gm	+0.7 gm
Compressive strength, N/mm^2: (ASTM C 109)				
Control samples	14	26	35	39
Acid exposed	15	24	35	37
Salt exposed	13	24	38	39

Permeability (CRD C 48)

Negative pressure:	Virtually impermeable, no visible degradation, no water flow. Slight dampening after 420 hours @ 14 bar (140 m head of water).
Positive pressure:	Virtually impermeable, @ 8.75 bar (87.5 m head of water). After 300 hrs @ 14 bar (140 m head of water) flow measured 0.075 cm3/hr over final 120 hours.

Instructions for use

Surface Preparation

Concrete surfaces must be clean, sound and free from oil, dirt, laitance and any other such contaminants which may interfere with the application process. Cleaning can be achieved by high pressure water jetting or by treating the surface with Fosroc Acid Etch.

High pressure water jetting is the preferred method of surface preparation because mechanical cleaning, surface saturation and substrate roughening are simultaneously achieved. All surfaces to receive Brushbond TGP must be pre-dampened.

New concrete

Following the striping of formwork, water jet or acid etch as above to remove all traces of form oil and surface laitance. Construction joints, cold joints and non-leaking joints greater than 0.25mm wide must be routed out to a minimum 25mm wide by 25mm in depth to reach sound

concrete, the profile of the routed joint should form a 'U' shape.

Leaking cracks

Should be prepared as above to form a chase of 25mm wide to approximately 35 to 50mm deep. Remove all debris from the work area before proceeding with through saturation of the area prior to the next stage of the works.

Where necessary use Renderoc Plug to stop flow of water at areas where treatment is to applied.

Mixing

For best results always add clean, potable water to the Brushbond TGP, do not add powder to water

Slurry consistency

Mix 1 part of clean water to 3 parts of powder product. Mix thoroughly with a slow speed drill fitted with an approved spiral paddle attachment. (Note: the preferred drill speed is between 280 to 640 rpm.)

Mortar consistence

For Mortar Consistence, reduce the water to achieve a stiff trowable mortar. Mix thoroughly with low-speed drill attached with a Mortar Paddle.

For larger batches use a mortar mixer, do not mix more material than can be used in 20 minutes at 25°C 50% RH. If the mixture thickness, re-stir to reduce the consistency, **do not** add additional water.

Dry shake method for newly poured concrete

The fresh concrete is placed, consolidated and levelled. Wait until the concrete can be walked on, leaving an indentation of 6 to 9 mm only. The concrete should be free from bleeding water and be able to support the weight of a Power Floater. Then float the open surface.

Use Brushbond TGP directly from the bags.

Wearing rubber gloves distribute the powder evenly by hand over the freshly poured concrete at ~0.8 kg/m^2 before the final trowelling works. Two applications are recommended to achieve the stated physical properties. It is recommended to distribute approximately 50% of the powder in one direction with the remaining 50% at right angles to the first application. For large areas a rotary type spreader may prove to be beneficial.

Release the powder as close to the wet concrete as is possible this will minimise powder loss during windy conditions.

As soon as the dry shake has absorbed the moisture from the base slab, it should be power floated. Apply the remaining dry shake material at right angles to the first application.

A roughened finish is recommended on the first coat to ensure adequate adhesion of the second, finally trowel finish the concrete to the required finish.

Allow the second application to absorb moisture from the base slab and then power float the material into the surface

Slurry coat for concrete

A two-coat application of Brushbond TGP slurry may be applied with a soft brush, broom or plaster sprayer at an application rate of approx. 1.3 kg/m^2. Ensure that the slurry is worked well into openings, rough surfaces, joints and routed out areas, Make the second application when the first coat has reached initial set (usually within one hour depend upon temperature). If the first coat has dried out, moisten surface before applying second coat.

Curing and protection

All Brushbond TGP applications must be kept moist for a minimum period of 48 hours. After initial set has taken place, moist curing using a water spray is recommended. the treated surface shall be 'fog' sprayed 3 to 4 times daily for the 48 hours period.

In hot climate conditions it is recommended to spray more frequently whereby the treated surface is kept constantly moist. It is extremely important to keep the Brushbond TGP moist to allow the crystal formation to occur. Protect surfaces from foot traffic for 48 hours or heavy traffic for 7 days.

Freshly applied Brushbond TGP must be protected from extreme weather conditions such as rain, strong winds, high temperatures and freezing for a period of not less than 48 hours following application.

Limitations

Brushbond TGP should not be used when the temperatures is below 5°C and falling. Brushbond TGP is not recommended for use on concrete substrates containing less than 13% Portland Cement. Full activation and effectiveness of the Brushbond TGP may require 2 to 3 weeks following application.

Technical support

Fosroc offers a comprehensive range of high performance, high quality repair, maintenance and construction products. In addition, Fosroc offers a technical support package to specifiers, end users and contractors, as well as on-site technical assistance in locations all over the world.

Brushbond TGP

Estimating

Supply

Brushbond TGP:	25kg bags
Renderoc Plug:	4.5kg tins

Coverage

Brushbond TGP:	1 to 1.5 kg/m^2 (slurry) 0.6 to 0.8 kg/m^2 (totally for shake)
Wet density:	approx. 1.6-1.8 kg/ltr

Storage

Shelf life of Brushbond TGP is one year if stored in original upended packs below 35°C in a shaded, dry environment.

Precautions

Health and safety

Brushbond TGP contains chemicals which may cause irritation to the eyes, respiratory system and skin. Goggles, rubber gloves and long sleeved garments are strongly recommended when using Brushbond TGP. Avoid inhalation of dust, if necessary, wear suitable respiratory protective equipment.

Fire

Brushbond TGP and Renderoc Plug are non-flammable.

Cleaning

In case of spillage, clean up waste material preferably utilising a dust free method and dispose of in accordance with local health and safety regulations.

Disposal

Immediately following the application Brushbond TGP, clean all tools and equipment with clean water. Cured material can only be removed mechanically

Additional information

Fosroc manufactures a wide range of complementary products which included:

- Waterproofing membrane & waterstops
- Joint sealants & filler boards
- Cementitious & epoxy grouts
- Specialised flooring materials

Fosroc additionally offers a comprehensive package of products specifically designed for the repair and refurbishment of damaged concrete. Fosroc' s 'Systematic Approach' to concrete repair features the following:

- Hand-placed repair mortars
- Spray grade repair mortars
- Fluid micro-concretes
- Chemically resistant epoxy mortars
- Anti-carbonation/anti- chloride protective coatings
- Chemical and abrasion resistant coatings

Fosroc further information on any of the above, please consult your local Fosroc office –as below.

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