

Concrete capillary penetrating, crystal growth sealing, cement based, waterproofing system for positive and negative water pressure applications

Uses

Vandex Concrete Grey can be applied to either the pressure or non-pressure faces of concrete and is excellent for solving the problem of water seepage through porous or cracked concrete in both new and old structures. Vandex Concrete Grey is ideal for treating concrete surfaces where the high pressure face is not easily accessible.

Typical applications include; lift pits, basement walls, concrete floor slabs, balconies, water storage tanks, swimming pools, sewerage treatment plants, canals and bridges etc.

Advantages

- In-depth waterproofing
- Permanently active
- Applied to either the pressure or non-pressure face of concrete
- Waterproofs static cracks and capillaries up to 0.3 mm width
- Approved for potable water contact
- Compatible with the host concrete
- Non-toxic
- Suitable for permanent sunlight exposure after curing
- Tested to withstand a water head of 70 metres
- Colour compatible with the host concrete
- Can be applied to damp concrete
- Priming not required to clean, well prepared concrete surfaces



Description

Vandex Concrete Grey is an in-depth cementitious waterproofing compound consisting of grey Portland cement and specially treated quartz sand blended with a range of active chemicals. Vandex Concrete Grey is pigmented to provide a more uniform colour which is more compatible with aged concrete.

After application, Vandex Concrete Grey supplies active ingredients to the host concrete under the forces of osmosis which react with the free lime in the host concrete to produce dendritic crystals. The crystals formed effectively block the pores, capillaries and minor cracks in the host concrete preventing the passage of liquid water, however the Vandex Concrete Grey treated concrete will still allow the passage of water vapour through the structure, thereby allowing the structure to breathe.

The fact that the waterproofing takes place from within the host concrete means that even under very high negative side water pressures, the waterproofing will not blister or be pushed off the wall.

Test Reports and Approvals

WRc Evaluation & Testing Centre Ltd, Oakdale, Gwent

- Potable water compatibility
- WBS Approval / Water Byelaws Scheme - approved

Drinking Water Inspectorate, Romney House, London

- Potable water compatibility - DWI-approval

Ambric Testing Inc. Philadelphia

- Waterproofing - water penetration

National Sanitation Foundation, Michigan

- Potable water compatibility - NSF-approval

Australian Standard 4020

- Potable water compatibility maximum pass achieved

Design Criteria

In most remedial waterproofing applications, Vandex Concrete Grey is normally applied in two coats by brush or spray at an application rate of 0.75 kg / m² / coat. Other applications include;

Water retaining structures - two coats by brush or spray at an application rate of 0.75kg / m² / coat.

Concrete slabs - one coat at an application rate of 1.2 kg / m² by brush onto hardened concrete, or dry sprinkled onto fresh wet concrete after initial set, and power trowelled into the surface.

Construction joints - one coat by brush at an application rate of 1.5 kg / m², applied to the abutting slab immediately before the next concrete pour.

Blinding concrete - one coat by brush at an application rate of 1.2 kg / m², or dry sprinkled onto the blinding slab immediately before pouring the overlaying slab.

Properties

Form:	Cementitious powder
Colour:	Cement grey
Bulk density:	1.15 - 1.35 kg / L
Initial setting time:	40 - 80 minutes
Full cure time at 20°C 50% RH:	5 days
Physical or chemical change:	Chemical cure
Application temperature:	5°C - 30°C
Service temperature (continuous ambient):	Minus 40°C - 120°C

Chemical Resistance

Vandex Concrete Grey protects concrete against sea water, waste water, aggressive ground water and a range of chemical solutions. Vandex Concrete Grey is approved for use in contact with potable water and is therefore suitable for the treatment of water storage tanks, reservoirs, water towers etc.

Maintenance

No special requirements, any damage identified during normal inspections should be water blasted clean, repaired and recoated as appropriate.

Specification Clauses

Where so designated on the drawings, concrete surfaces shall have an in-depth crystal growth waterproofing compound applied. The in-depth cementitious waterproofing product must be permanent and capable of waterproofing static cracks and capillaries up to 0.3 mm in width. It must have a proven capability of sustaining pressures of 7.0 bar (70 metre head) while maintaining its waterproofing integrity. The waterproofing treatment must be compatible with the host concrete, non-toxic and be capable of being applied as a dry powder to fresh wet concrete, or as a slurry by brush, or spray application through a hopper gun to cured concrete.

The waterproofing must be installed by a prequalified contractor nominated by the supplier and both the manufacturer and supplier must be accredited to ISO9001.

Vandex Concrete Grey supplied by Parchem is such a product.

Surface Preparation

When applying Vandex Concrete Grey to existing concrete, all surfaces to be waterproofed should be clean, sound and free of concrete curing compounds, form release agents, paints and all other coatings.

Concrete surfaces should be prepared by water blasting, grit blasting or wire brushing in order to remove the laitance and open the pore structure of the concrete in preparation to receive the Vandex Concrete Grey.

Concrete surfaces should be free from major imperfections. All major imperfections must be repaired with a suitable cementitious reprofiling mortar such as Vandex Uni Mortar 1-Z which is suitable for reprofiling depths of 6 mm to 12 mm. Larger repairs may be carried out using a suitable cementitious repair mortar.

Priming

Priming is not normally required on good quality concrete substrates, however all surfaces must be pre-watered before applying Vandex Concrete Grey.

Movement joints

All expansion and movement joints should be sealed with a suitable joint sealant after application of the Vandex Concrete Grey. Consult your local Parchem office for advice on the joint sealing method best suited to your application.

Cracks

All shrinkage and non-moving structural cracks having a width equal to or less than 0.3 mm will be waterproofed by the application of Vandex Concrete Grey. Static cracks wider than 0.3 mm must be routed out to form a 'V' shaped groove with a hand or power chisel to a depth and width of approximately 25 mm. These larger cracks must be repaired by priming the chiselled out crack with two coats of Vandex Concrete Grey, followed by the application of Vandex Uni Mortar 1-Z to fill the rebate flush with the concrete surface. All of the above products must be installed 'green on green', before the previous layer has dried out.

Live cracks cannot be waterproofed with Vandex Concrete Grey. If live cracks are present, Vandex BB75E-Z, an elasticised cementitious membrane should be considered. Consult your local Parchem sales office for advice regarding the best method of waterproofing live cracks.

Water seepage

All water seepage must be stopped using Vandex Plug prior to the application of Vandex Concrete Grey.

Application Instructions

Vandex Concrete Grey is supplied in the form of a dry powder and can be applied in as a dry powder or as a slurry by brush or spray. No mixing is required for dry powder application.

When used as a slurry, Vandex Concrete Grey is mixed with clean tap water in the ratio of 5 parts Concrete Grey to 2 parts water by volume. The Vandex Concrete Grey powder and water must be thoroughly mixed using a slow speed electric drill (300 rpm) or Festo type mixer fitted with a grout mixing paddle (PC 770163) for 3 minutes immediately prior to use. Mix only as much material as can be used in 20

minutes and stir the mixture frequently. If the mixture starts to set, do NOT add more water, simply stir the product to restore workability.

Ensure that all surfaces to which Vandex Concrete Grey will be applied are pre-watered. The correct amount of pre-watering is measured by the substrate taking on a greenish appearance, however there must be no free surface water. A simple check can be performed by placing a hand on the pre-watered substrate and removing the hand. If the hand is wet from contact with the substrate, then the substrate is too wet and must be allowed time for the excess surface water to evaporate. Surfaces that have been pre-watered and dry out before application of the Vandex Concrete Grey must be pre-watered again.

Apply the first coat from the base of the wall and work towards the top using a stiff bristle brush in a horizontal scrubbing action or by spray using a hopper gun.

When using a hopper gun, immediately after application of the first coat, scrub the Vandex Concrete Grey into the concrete surface with a stiff bristle brush using a horizontal action.

After 4 - 5 hours apply the second coat 'green on green' so that a chemical bond is achieved between the two coats. Do not apply more first coat during a day's work session than can be overcoated with a second coat during the same day.

When applying Vandex Concrete Grey by spray using a Vandex hopper gun, ensure that the gun is held directly perpendicular to the surface at a distance of about 500 mm to ensure that the maximum impact energy is applied to the surface and to prevent any shadowing across small surface imperfections.

Besides temperature, humidity also has an influence on waiting times between coats and resistance to rain. Ensure that the freshly applied Concrete Grey is protected from rain for the first day, and the drying effects of the sun and wind during the first 5 days of cure.

In most remedial waterproofing applications, Vandex Concrete Grey is applied in two coats by brush or spray at an application rate of 0.75 kg / m² / coat. Application rates are as follows;

Water retaining structures and internal concrete walls

Apply two coats by brush or spray at an application rate of 0.75 kg / m² / coat.

Concrete floors and decks

Apply one coat at an application rate of 1.2 kg / m² by brush onto hardened concrete, or dry sprinkled onto fresh wet concrete after initial set, and power trowelled into the surface.

Construction joints

Apply one coat by brush at an application rate of 1.5 kg / m²,

applied to the abutting slab immediately before the next concrete pour.

Blinding concrete

Apply one coat by brush at an application rate of 1.2 kg / m², or dry sprinkled onto the blinding slab immediately before pouring the overlaying slab.

Curing and protection

Concrete surfaces treated with Vandex Concrete Grey must be kept damp and must be protected from the drying action of direct sunlight for a minimum period of 5 days after application.

Protect all treated surfaces from wind and frost, by covering with damp hessian / geotextile fabric (such as Emer-Proof Geotex, plastic sheeting or equivalent).

Cleaning

Tools and equipment should be cleaned with water immediately after use.

Limitations

Vandex Concrete Grey works by reacting with the free lime in the host concrete. For this reason Vandex Concrete Grey should not be used on substrates which do not contain free lime. Examples of unsuitable substrates include brick, stone ceramics, granite and marble. Concrete blocks and Hebel blocks are also unsuitable because of their very low lime and cement content and the very porous nature of these blocks. Water seepage through these substrates can be treated using Vandex Uni Mortar 1-Z or Vandex BB75-Z, a surface applied cementitious waterproofing membrane.

Vandex Concrete Grey is designed as a waterproofing treatment for concrete. The product may discolour after application and therefore should not be used as an architectural finish.

Potable water applications

Where potable water will be in contact with Vandex products, care must be taken to insure the surface has had adequate time to cure prior to filling. If the area is returned to service too soon 'water taint' may occur. Once adequate curing time has been left, it is good practice to complete a thorough washing down of the lining with clean water prior to the first filling. Variable atmospheric conditions will dictate how long to leave the surface prior to the wash down. As a guide please refer to the table below:

Temperature (°C)	Cure time (days)
5 - 10°C	14 days
10 - 15°C	10 days
15 - 25°C	7 days
25 - 30°C	5 days

Vandex® Concrete Grey

Estimating

Packaging

Vandex Concrete Grey: 25kg bag
Product Code: 751011

Vandex Uni Mortar 1-Z: 25 kg bag
Product Code: 751008

Vandex Plug: 15 kg resealable plastic pail
Product Code: 751006

Emer-Proof Geotex: 100mtr x 1mtr roll
(geotextile fabric for curing)
Product Code: 744000

Coverage

Vandex Concrete Grey: 1.0 - 1.5 kg / m²
16 - 25 m² / 25 kg bag

Vandex Uni Mortar 1-Z: 6 - 12 kg / m²

Storage

12 months in original containers stored in cool, dry conditions i.e. not exceeding 30°C. Storage above this temperature may reduce storage life.

Equipment

Dry powder application - 2 mm sieve.

Slurry application - Plasterers brush, Vandex short handled brush or Vandex long handled brush.

Spray application - Vandex hopper gun, air compressor capable of 3 bar pressure and an air capacity of 220 litres/minute.

Important notice

A Safety Data Sheet (SDS) and Technical Data Sheet (TDS) are available from the Parchem website or upon request from the nearest Parchem sales office. Read the SDS and TDS carefully prior to use as application or performance data may change from time to time. In emergency, contact any Poisons Information Centre (phone 13 11 26 within Australia) or a doctor for advice.

Product disclaimer

This Technical Data Sheet (TDS) summarises our best knowledge of the product, including how to use and apply the product based on the information available at the time. You should read this TDS carefully and consider the information in the context of how the product will be used, including in conjunction with any other product and the type of surfaces to, and the manner in which, the product will be applied. Our responsibility for products sold is subject to our standard terms and conditions of sale. Parchem does not accept any liability either directly or indirectly for any losses suffered in connection with the use or application of the product whether or not in accordance with any advice, specification, recommendation or information given by it.



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