

Flexible, surface applied, cement based waterproofing barrier for positive and negative water pressure applications

Uses

Waterproofing of concrete and masonry structures both new and old where live cracks are present. Vandex Cemelast is a flexible cementitious membrane and does not rely on crystal growth to achieve its waterproofing. As a result, Cemelast can be used on most masonry surfaces, including sandstone, provided that the surfaces are adequately prepared.

Vandex Cemelast has been formulated using sulphate resisting cement making it ideal for application in pH aggressive water. It can be applied to either the pressure or non-pressure faces of the concrete or masonry.

Vandex Cemelast is excellent for solving the problem of water seepage through concrete and masonry where live cracks are present in both new and old structures.

Vandex Cemelast is ideal for application in potable water structures.

It can also be used in applications where live crack movement up to 0.3 mm exists.

Advantages

- Permanently flexible and accommodates dynamic crack movement up to 0.3 mm
- Applied to either the pressure or non pressure face of concrete
- Tested to withstand a water head of 15 metres
- Based on sulphate resisting cement making it suitable for use in tanks containing pH aggressive water
- Works on masonry, brick, stone and concrete blocks where crystal growth treatments are not effective
- Applied to damp concrete
- Non-toxic
- Suitable for use in potable water

Description

Vandex Cemelast is a ready-mixed, two component, polymer modified, cementitious, waterproofing membrane which is made by mixing Vandex BB75-Z with Vandex Cemelast liquid. The BB75-Z powder component consists of grey sulphate resistant cement, graded quartz sands and inorganic additives. The Cemelast liquid is the polymer component. Vandex Cemelast is waterproof and has been tested to a pressure of 1.5 bar (15m water head). The initial and final bonding capability of Cemelast is excellent, making it suitable for application to both vertical and horizontal surfaces. It is durable, resistant to frost and heat after setting and remains permeable to water vapour.

Standards Approvals

Australian Standard AS/NZS 4020:1999

- Testing of drinking water compatibility

Design Criteria

In most waterproofing applications, Vandex Cemelast is applied in 2 coats by trowel or spray at a total thickness of 2.5 mm.

Note: The maximum total thickness of all coats of the Vandex Cemelast system must not exceed 4 mm.

Properties

Form:	2 Components - cementitious powder + milky white liquid
Colour:	Cement grey (after curing)
Density (wet mix):	1.65
Crack movement:	0.3 mm dynamic crack movement
Elongation at break:	13% (20°C)
Initial setting time:	2 - 4 hours
Full cure time at 20°C	
50% RH:	5 days
Physical or chemical change:	Chemical cure
Application temperature:	5 - 30°C

Chemical Resistance

Vandex Cemelast protects concrete against aggressive water, sea water, aggressive ground water and a range of chemical solutions.

Specification Clause

Where so designated on the drawings, surfaces to be waterproofed shall have a surface applied, flexible cementitious waterproofing membrane installed. The waterproofing product will be produced by mixing a cementitious powder component with a liquid polymer component. The waterproofing must form an impermeable layer on the surface of the substrate and must not rely on crystal growth within the substrate in order to be effective. The waterproofing treatment must be flexible and be capable of accommodating long term cyclic crack movement up to 0.3 mm without any loss of waterproofing integrity. It must have a proven capability of sustaining pressures of 1.5 bar (15 metre water head) even after sustaining 0.3 mm cyclic crack movement.

The cementitious waterproofing membrane must be non toxic and be capable of being applied to concrete and masonry surfaces by trowel or spray application through a fine mortar spray machine.

Vandex Cemelast supplied by Parchem is such a product.

Surface Preparation

When applying Vandex Cemelast to existing concrete or masonry, all surfaces to be waterproofed should be clean, sound and free of concrete curing compounds, form release agents, paints and all other coatings, dirt and contamination.

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

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 required on good quality concrete substrates, however all surfaces must be pre-watered before applying Vandex Cemelast.

Movement joints

All expansion and movement joints should be sealed with a suitable joint sealant after application of the Vandex Cemelast. Consult the local Parchem sales 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 can be waterproofed by applying Vandex Cemelast directly bridging over the crack. Live cracks can be waterproofed with Vandex Cemelast provided that the maximum crack movement does not exceed 0.3 mm. In the event of larger crack movement, consult your local Parchem sales office for advice regarding the most appropriate waterproofing system.

Water seepage

All water seepage must be stopped using Vandex Plug prior to the application of Vandex Cemelast. Do not attempt to apply Cemelast over weeping or seeping substrates no matter how slow the seepage, as the Vandex Cemelast will be damaged by the seepage water before it has a chance to cure.

Application Instructions

Vandex Cemelast is supplied as 2 components. The powder component BB75-Z is mixed with a milky white liquid component, Cemelast liquid to produce a slurry which can be applied by trowel, brush or spray.

To mix, place 25 kg of Vandex BB75-Z into a clean container and add 9 kg of Cemelast liquid.

The Vandex BB75-Z powder and Cemelast liquid must be thoroughly mixed using a slow speed heavy duty electric drill (300 rpm) fitted with a spiral 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 water, simply stir the product to restore workability.

Ensure that all surfaces to which Vandex Cemelast will be applied are pre-watered. The correct amount of pre-watering is measured by the substrate taking on a darkened 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 Cemelast must be pre-watered again.

Apply the first coat from the base of the wall and work towards the top using a trowel or mortar spray gun.

After 2-4 hours apply the second coat "green on green" so that a chemical bond is achieved between the two coats. The first coat must be firm enough not to be damaged by application of the second coat. Do not apply more first coat during a day's work session than can be overcoated with a 2nd coat during the same day.

When applying Vandex Cemelast by spray using a mortar spray gun (recommended nozzle size is 6mm), 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.

After application of the first coat by spray, brush or trowel the wet surface to remove any entrapped air.

When applied by mortar spray gun, Vandex Cemelast produces a rough textured finish which will need to be trowelled smooth with a steel trowel.

The cure time of Vandex Cemelast is affected by both temperature and humidity. Humidity has an influence on waiting times between coats and resistance to rain. Ensure that the freshly applied Cemelast 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 waterproofing applications, Vandex Cemelast is applied in 2 coats by trowel or spray at a total film WFT thickness of 2.5 mm.

Curing and protection

Surfaces treated with Vandex Cemelast must be protected from rain, ponded water and 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 plastic sheeting, tarpaulin or equivalent.

Cleaning

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

Vandex® Cemelast

Coatings

Surfaces treated with Vandex products which are to be coated or painted should be left to cure for at least 28 days. Coatings on top of a Vandex treatment have to be alkali resistant. Decorative coatings applied on the passive (negative) water pressure side are recommended to be water vapour permeable.

Maintenance

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

Limitations

*In negative side applications, do not apply Vandex Cemelast to substrates that are weeping. Use Vandex Plug to stop all water seepage before applying Cemelast.

Sewerage processing applications

Vandex Cemelast is only suitable for use in open headed sewerage processing tanks. Consult Parchem for specific advice on the use of Vandex Cemelast in closed sewerage environments where sulphuric acid concentrations may be high.

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

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.

Supply

Vandex BB75-Z Product Code: FC051005-25KG	25 kg bag
Cemelast Liquid Product Code: FC051009-9KG	9 kg pail
Vandex Uni Mortar 1-Z Product Code: FC051008-25KG	25 kg bag
Vandex Plug Product Code: FC051006-15KG	15 kg plastic pail
Vandex Plug Product Code: FC000557-5KG	5 kg plastic pail

Coverage

Type of application	Recommended total application rate:	Number of coats:
Pressureless water:	2.5 - 3.5 kg / m ²	2
Water under pressure *:	3.5 - 5.5 kg / m ²	2 - 3

Storage

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



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