Vandex® BB75E-Z

Technical Data Sheet

Crack accommodating, surface applied, cement based waterproofing render for positive and negative water pressure applications

Uses

Waterproofing of concrete and masonry structures both new and old where live cracks are present. Vandex BB75E-Z is a flexible cementitious membrane and does not rely on crystal growth to achieve its waterproofing. As a result, BB75E-Z can be used on most masonry surfaces, including sandstone, provided that the surfaces are adequately prepared.

Vandex BB75E-Z has been formulated using sulphate resisting cement making it suitable for application in open-head sewerage environments.

Vandex BB75E-Z is excellent for solving the problem of water seepage through concrete and masonry where live cracks are present in both new and old structures. It can be applied to either the positive pressure or negative pressure faces of the concrete or masonry.

Vandex BB75E-Z is ideal in applications where the positive pressure face is not easily accessible such as lift pits and basement walls. It is also ideal for waterproofing the inside face of swimming pools, sewerage processing tanks, concrete block walls and any masonry surface where crystal growth waterproofing will not be effective due to a lack of alkalinity in the substrate.

Advantages

- Permanently flexible and accommodates dynamic crack movement up to 0.8 mm
- Applied to either the positive or negative pressure face of concrete
- Based on sulphate resisting cement making it suitable for use in open-head sewerage processing tanks
- Works on masonry, brick, stone and concrete blocks where crystal growth treatments are not effective
- Complies with AS4020:2018 - suitable for use in contact with drinking water
- Suitable for permanent sunlight exposure after curing
- Tested to withstand a water head pressure of 70 metres
- Can be applied to damp concrete

Description

Vandex BB75E-Z is a two component, polymer modified, cementitious, waterproofing membrane which is made by mixing Vandex BB75-Z with Vandex Elasticiser PK 75. The BB75-Z powder component consists of grey sulphate resistant cement, graded quartz sands and inorganic additives. The Elasticiser PK 75 is the polymer component. Vandex BB75E-Z is waterproof and has been tested to a pressure of 7.0 bar (70 m water head). The initial and final bonding capability of BB75E-Z 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.

Test reports and approvals

Australian Standard AS 4020:2018 Contact with potable water.

Official Materials Testing Institute Clausthal-Zellerfeld

- Mechanical properties / waterproofing
- Cracking strain / tensile strength / bridging capacity / H_2O-vapour diffusion / absorption coefficient / water penetration

Official Materials Testing Institute Clausthal-Zellerfeld

- Waterproofing - water penetration

Design Criteria

In most waterproofing applications, Vandex BB75E-Z is applied in 2 coats by trowel or spray. Specific minimum application rates are as follows;

Ground moisture - 2 coats by brush, trowel or spray at an application rate of 1.5 kg / m² / coat. (Total minimum layer thickness for 2 coats must be 2.0 mm).

Pressureless surface water - 2 coats by brush, trowel or spray at an application rate of 1.5 kg / m² / coat. (Total minimum layer thickness for 2 coats must be 2.0 mm).

Water under pressure - 2 coats by brush, trowel or spray at an application rate of 2.0 kg / m² / coat. (Total minimum layer thickness for 2 coats must be 2.5 mm).

Note: the maximum total thickness of all coats of the BB75E-Z system should not exceed 4 mm.

Vandex® BB75E-Z

Properties

Form:	2 Components - cementitious powder + milky white liquid
Colour:	Dark grey (after curing)
Density (wet mix):	1.7 kg / L
Crack bridging:	< 0.8 mm @ 20°C
Permeabilityto CO_2:	S_D > 50 m
Water vapour permeability:	Class 1 S_D , 5 m
Capillary water absorption:	w < 0.1kg/m^2 x h$^{0.5}$
Adhesion strength:	> 0.8 MPa
Initial setting time:	3 - 6 hours
Full cure time at 20°C 50% RH:	5 days
Application temperature:	5 - 30°C
Workability @ 20°C:	Approx. 30 mins

Chemical Resistance

Vandex BB75E-Z protects concrete against sewerage 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 0.8 mm without any loss of waterproofing integrity. It must have a proven capability of sustaining pressures of 7.0 bar (70 metre water head) even after sustaining 0.8 mm cyclic crack movement. The setting time for the waterproofing must be in the range 3 - 4 hours.

The cementitious waterproofing membrane must be non toxic and be capable of being applied to concrete and masonry surfaces by trowel, or as a slurry by brush or by spray application through a hopper gun.

The waterproofing must be installed by an experienced contractor and both the manufacturer and supplier must be accredited to ISO9001.

Surface Preparation

When applying Vandex BB75E-Z 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, 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 BB75E-Z.

Concrete surfaces should be free from major imperfections. All major imperfections must 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. All surfaces must be pre-watered before applying Vandex BB75E-Z.

Movement joints

All expansion and movement joints should be sealed with a suitable joint sealant after application of the Vandex BB75E-Z.

Cracks

All shrinkage and non-moving structural cracks having a width equal to or less than 0.8 mm can be waterproofed by applying Vandex BB75E-Z directly bridging over the crack. Static cracks wider than 0.8 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 2 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 can be waterproofed with Vandex BB75E-Z provided that the maximum crack movement does not exceed 0.8 mm.

Water seepage

All water seepage must be stopped using Vandex Plug prior to the application of Vandex BB75E-Z. Do not attempt to apply BB75E-Z over weeping or seeping substrates no matter how slow the seepage, as the BB75E-Z will be damaged by the seepage water before it has a chance to cure.

Application instructions

Vandex BB75E-Z is supplied as 2 components. The powder component BB75-Z is mixed with a milky white liquid component, Elasticizer PK 75 to produce a slurry which can be applied by trowel, brush or spray.

To mix, place 10 kg of Elasticizer PK 75 into a clean container and add 25 kg of Vandex BB75-Z.

The Vandex BB75E-Z powder and Elasticizer PK75 must be thoroughly mixed using a slow speed heavy duty electric drill (300 rpm) or heavy duty mixer fitted with a spiral mixing paddle 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 BB75E-Z 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 BB75E-Z must be pre-watered again.

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

When applying Vandex BB75E-Z 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.

After 4 - 5 hours apply the second coat “green on green” so that a chemical bond is achieved between the 2 coats. Do not apply more first coat during a day’s work session than can be overcoated with a 2nd coat during the same day.

Humidity has an influence on waiting times between coats and resistance to rain..

In most waterproofing applications, Vandex BB75E-Z is applied in 2 coats by brush, trowel or spray. Specific minimum application rates are as follows;

Ground moisture - 2 coats by brush, trowel or spray at an application rate of 1.5 kg / m² / coat (total minimum layer thickness for 2 coats must be 2.0 mm).

Pressureless surface water - 2 coats by brush, trowel or spray at an application rate of 1.5 kg / m² / coat (total minimum layer thickness for 2 coats must be 2.0 mm).

Water under pressure - 2 or 3 coats by brush, trowel or spray at an application rate of 2.0 kg / m² / coat (total minimum layer thickness for 2 coats must be 2.5 mm).

When applied by mortar spray gun, Vandex BB75E-Z produces a rough textured finish which may need to be trowelled smooth with a steel trowel

Curing and protection

Provide suitable protection against extreme weather conditions (e.g.rain, sun, wind, frost) while setting. The freshly treated surfaces should be protected from rain for a minimum period of 24 hours.

The Vandex BB75E-Z coating must be fully cured before getting in contact with water. Avoid formation of water films or condensation on top of the coating during 7 days after application.

Provide a relative humidity of 60–80% and good air exchange in enclosed areas.

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

Cleaning

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

Limitations

Vandex BB75E-Z is suitable for use in open headed sewerage processing tanks. Consult Parchem for specific advise on the use of Vandex BB75E-Z in closed sewerage environments where sulphuric acid concentrations may be high. In negative side applications, do not apply Vandex BB75E-Z to substrates that are weeping. Use Vandex Plug to stop all water seepage before applying BB75E-Z.

Vandex® BB75E-Z

Supply

Vandex BB75-Z Material Code:	25 kg bag FC051005-25KG
Vandex Elasticizer PK 75 Material Code:	10 kg pail FC051003-10KG
Vandex Uni Mortar 1-Z Material Code:	25 kg bag FC051008-25KG
Vandex Plug Material Code:	5 kg plastic pail FC000557-5KG
Vandex Plug Material Code:	15 kg plastic pail FC051006-15KG

Coverage

Type of application	*Recommended total application rate:*	*Number of coats:*
Pressureless water:	2.5 - 4.0 kg / m²	2
Water under pressure:	3.5 - 5.5 kg / m²	2 - 3

Storage

Vandex BB75-Z and Elasticizer PK75 have a shelf life of 18 months in original containers stored in cool, dry conditions between 4°C and 35°C. Do not use if there are hardened lumps in the powder or a bacterial smell in the liquid emulsion.

Important notice

A Safety Data Sheet (SDS) is available from the Fosroc website. 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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