Vandex® Uni Mortar 1-Z

Technical Data Sheet

Cement based reprofiling and waterproofing repair mortar

Uses

Primarily used for the reprofiling of new and old concrete and masonry surfaces prior to the application of Vandex BB75-Z. Uni Mortar 1-Z is also suitable for use on its own as a waterproofing layer.

Vandex Uni Mortar 1-Z is a surface applied, waterproof cementitious mortar for reprofiling concrete and masonry which does not rely on crystal growth to achieve its waterproofing. As a result, Uni Mortar 1-Z can be used on most masonry surfaces, including sandstone, provided that the surfaces are adequately prepared.

Vandex Uni Mortar 1Z is applied in layers between 6mm and 12mm.

Vandex Uni Mortar 1-Z has been formulated using sulphate resisting cement making it ideal for application in sewerage environments. It can be applied to either the positive pressure or negative pressure faces of the concrete or masonry.

Vandex Uni Mortar 1-Z is ideal for reprofiling the inside walls of sewerage processing tanks where acid attack has caused some loss of the original concrete.

Other applications include; swimming pools, water storage tanks, and any masonry surface requiring the reprofiling of surfaces with depths in the range of 6 -12 mm, prior to the application of Vandex BB75-Z.

Advantages

- Highly abrasion resistant
- Applied to either the positive pressure or negative pressure face of concrete
- Suitable for use in contact with potable water.
- Based on sulphate resisting cement making it suitable for use in sewerage processing tanks
- Works on masonry, brick, stone and concrete blocks where crystal growth treatments are not effective
- Suitable for permanent sunlight exposure after curing
- Tested to withstand a water head pressure of 70 metres when applied at a thickness of 10 mm
- Colour compatible with the host concrete
- Can be applied to damp concrete

Standards Compliance

Vandex Uni Mortar 1-Z complies to AS/NZS 4020:2018 at an exposure level of 15,000mm² per litre; AWQC Report 380452.

Copies of the report are available on the Fosroc website.

Description

Vandex Uni Mortar 1-Z is a ready-mixed, cementitious, surface applied, waterproofing and repair mortar consisting of grey sulphate resistant cement, graded quartz sands and inorganic additives. Vandex Uni Mortar 1-Z is waterproof and has been tested to a pressure of 7.0 bar (70m water head) when applied at a thickness of 10mm. The initial and final bonding capability of Uni Mortar 1-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.

Design Criteria

In most waterproofing and repair applications, Vandex Uni Mortar 1-Z is applied in 1 application by trowel or spray at a layer thickness of 6 to12mm.

Properties

Form:	Cementitious powder
Colour:	Cement grey
Fresh wet density:	2.1 kg / L
Max aggregate size:	2mm
Compressive strength:	45 MPa after 28 days
Capillary absorption:	0.05 kg/m².h$^{0.5}$
Bending tensile strength:	7 MPa after 28 days
Elastic modulus:	24 GPa
Initial setting time:	3 - 6 hours
Full cure time at 20°C 50% RH:	5 days
Workability @ 20°C:	Approx. 45 mins
Application temperature:	5°C - 30°C
Service temperature (continuous ambient):	Minus 40°C - 120°C

Chemical Resistance

Vandex Uni Mortar 1-Z protects concrete against sewerage water, sea water, aggressive ground water and a range of chemical solutions.

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Application Instructions

Surface Preparation

When applying Vandex Uni Mortar 1-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 weak laitance layer from the surface of the concrete in preparation to receive the Vandex Uni Mortar 1-Z.

Priming

Priming is not normally required on good quality concrete substrates, however all surfaces must be thoroughly pre-watered before applying Vandex Uni Mortar 1-Z.

Movement joints

All expansion and movement joints should be sealed with a suitable joint sealant after application of the Vandex Uni Mortar 1-Z.

Cracks

All shrinkage and non-moving structural cracks having a width equal to or less than 0.3 mm will be waterproofed by applying Vandex Uni Mortar 1-Z directly bridging over the crack. Static cracks wider than 0.3 mm must be routed out to form a 'V' shaped groove with a hand chisel or power chisel to a depth and width of approximately 25 mm.

Live cracks cannot be waterproofed with Vandex Uni Mortar 1-Z. If the structure contains live cracks, Vandex BB75E-Z, an elasticised cementitious waterproofing membrane should be considered.

Water seepage

All water seepage must be stopped using Vandex Plug prior to the application of Vandex Uni Mortar 1-Z. Do not attempt to apply Uni Mortar 1-Z over weeping or seeping substrates no matter how slow the seepage, as the Uni Mortar 1-Z will be damaged by the seepage water before it has a chance to cure.

Application

Vandex Uni Mortar 1-Z is supplied in the form of a dry powder and can be applied as a slurry by trowel. To mix, place 3 to 4 litres of clean tap water into a clean container and add 25 kg of Vandex Uni Mortar 1-Z for trowel application.

The Vandex Uni Mortar 1-Z powder and water must be thoroughly mixed using a slow speed heavy duty electric drill (300 rpm) or 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 more water, simply stir the product to restore workability.

Ensure that all surfaces to which Vandex Uni Mortar 1-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 Uni Mortar 1-Z must be pre-watered again.

Apply the mixed Uni Mortar 1-Z from the base of the wall and work towards the top using a trowel or spray equipment. If a second application is required, allow the first layer to reach initial cure before applying a second layer. After 4 - 5 hours apply the second layer 'green on green' so that a chemical bond is achieved between the two layers.

Spray application - mortar slurry spray gun with an 8 - 16mm nozzle with air introduced at the nozzle. Air compressor capable of 5 bar pressure and an air capacity of 500 litres/minute with the regulator set to a pressure of 1.0 - 2.0 bar by means of a pressure reducer. Mortar pump capable of 12 to 20 bar max at the worm depending on the length of hose (60 metre max hose length).

When applying Vandex Uni Mortar 1-Z by spray ensure that the gun is held directly perpendicular to the surface to ensure that the maximum impact energy is applied to the surface and to prevent any shadowing across surface imperfections. After application of the first coat by spray, brush or trowel the wet surface to remove any entrapped air. If other products are to be applied over Vandex Uni Mortar 1-Z, roughen the surface slightly by brushing or brooming the surface of the Uni Mortar 1-Z while it is still wet.

The cure time of Vandex Uni Mortar 1-Z is affected by both temperature and humidity. Humidity has an influence on waiting times between layers and resistance to rain. Ensure that the freshly applied Uni Mortar 1-Z 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 Uni Mortar 1-Z is applied in one application by trowel or spray. Apply one layer by trowel or spray at an application rate of 12 - 24 kg / m² (Minimum layer thickness must be 6.0 mm).

Curing and protection

Surfaces treated with Vandex Uni Mortar 1-Z 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, plastic sheeting or similar.

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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 Uni Mortar 1-Z is suitable for use only in open headed sewerage processing tanks.

In negative side applications, do not apply Vandex Uni Mortar 1-Z to substrates that are weeping. Use Vandex Plug to stop all water seepage before applying Uni Mortar 1-Z.

Supply

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

Vandex Uni Mortar 1-Z:	12 - 24 kg / m² 1 - 2 m² / 25 kg bag

Storage

Vandex Uni Mortar 1-Z has a shelf life of 12 months in original packaging stored in cool, dry conditions i.e. not exceeding 30°C. Storage above this temperature may reduce storage life.

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