

Cement based reprofiling and waterproofing repair mortar - 6 mm to 12 mm thickness

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 1-Z has been formulated using sulphate resisting cement making it ideal for application in sewerage environments. It can be applied to either the pressure or non-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 pressure or non-pressure face of concrete
- Approved for potable water contact
- 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
- Non-toxic
- Suitable for permanent sunlight exposure after curing
- Tested to withstand a water head of 70 metres when applied at a thickness of 10 mm
- Colour compatible with the host concrete
- Can be applied to damp concrete



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 10 mm. 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.

Test Reports and Approvals

Australian Standard AS/NZS 4020:1999

- Potable water compatibility

Official Materials Testing Institute Clausthal-Zellerfeld

- Mechanical properties
- Bend - tensile strength / compressive strength / adhesion / modulus of elasticity

LMP Baustoffprüfinstitut, Beinwil am See

- Resistance against sewage
- Shrinkage and swelling behaviour / bend tensile and compressive strength / structural composition

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 - 12 mm.

Maintenance

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

Chemical Resistance

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

Properties

Form:	Cementitious powder
Colour:	Cement grey
Bulk density:	1.50 - 1.70 kg / L
Compressive strength:	45 MPa after 28 days water storage
Bending tensile strength:	7 MPa after 28 days water storage
Elastic modulus:	2.45 x 10 ⁴ N/mm ² after 28 days air cure at 23°C, 50% RH
Initial setting time:	5 - 6 hours
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

Specification Clauses

Where so designated on the drawings, surfaces to be repaired and waterproofed shall have a surface applied, cementitious repair and waterproofing mortar applied. The repair and waterproofing mortar must be capable of being applied at a thickness ranging from 6 - 12 mm to vertical, horizontal and overhead surfaces without slumping. The mortar must form a water impermeable layer on the surface of the substrate and must not rely on crystal growth within the substrate in order to be effective. It must have a proven capability of sustaining pressures of 7.0 bar (70 metre water head) at a thickness of 10 mm while maintaining its waterproofing integrity. The waterproofing treatment must have a compressive strength greater than 38 MPa and bending tensile strength greater than 5 MPa after 28 days water cure. The cementitious waterproofing layer must have a modulus of elasticity greater than 2.0 x 10⁴ MPa after 28 days cure. The setting time for the waterproofing must be in the range 2 - 4 hours and the bulk density for the dry powder before mixing must be in the range 1.50 - 1.70 kg/litre.

The cementitious mortar must be non-toxic and be capable of being applied to concrete and masonry surface by trowel or by spray.

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 Uni Mortar 1-Z supplied by Parchem is such a product.

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 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. 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 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. Consult your local Parchem 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 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 Instructions

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 25 kg of Vandex Uni Mortar 1-Z into a clean container and add 3 - 4 litres of clean tap water for trowel application.

The Vandex Uni Mortar 1-Z 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 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.

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 (such as Emer-Proof Geotex, plastic sheeting or equivalent).

Cleaning

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

Limitations

Vandex Uni Mortar 1-Z is suitable for use in open headed sewerage processing tanks. Consult Parchem for specific advise on the use of Vandex Uni Mortar 1-Z in closed sewerage environments where sulphuric acid concentrations may be high. 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.

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

Estimating

Packaging

Vandex Uni Mortar 1-Z: 25kg 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

Vandex® Uni Mortar 1-Z

Coverage

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

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

Slurry application - Trowel.

Spray application - mortar slurry spray gun with an 8 - 16 mm 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).

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.

