VANDEX UNI MORTAR 1 ZSR

NSF Approved, Waterproofing Repair Mortar

EUCLID CHEMICAL

Description

VANDEX UNI MORTAR 1 ZSR is a single-component, waterproofing mortar, which is NSF approved for resurfacing potable water structures. VANDEX UNI MORTAR 1 ZSR can be used to make horizontal, vertical and overhead repairs. In addition to repairing concrete and masonry substrates, VANDEX UNI MORTAR 1 ZSR also waterproofs and is resistant to residential sewage and sulfates. VANDEX UNI MORTAR 1 ZSR is applied in 1/4" (6 mm) to 1" (25 mm) lifts by trowel or spray equipment.

Primary Applications

- Structural slabs
- Swimming pools
- Foundations & basements
- Tunnels
- Dams & water reservoirs
- Manholes
- Sewage & water treatment plants
- Culverts
- Spillways

Features/Benefits

- NSF approved for potable water
- Sewage and sulfate resistant
- Perfect for horizontal, vertical and overhead surfaces
- Repairs and waterproofs at the same time

Technical Information

Material Properties @70°F and 50% RH under laboratory conditions

Compressive Strength ASTM C109
1 day.....1,500 psi (10.3 MPa)
7 days.....4,800 psi (33.1 MPa)
28 days.....7,500 psi (51.7 MPa)

Flexural Strength ASTM C348
1 day.....450 psi (3.1 MPa)
7 days.....500 psi (3.4 MPa)
28 days.....1,500 psi (10.3 MPa)

Slant Shear Bond ASTM C882 modified
1 day.....600 psi (4.1 MPa)
7 days.....1,400 psi (9.7 MPa)
28 days.....1,500 psi (10.3 MPa)

Modulus of Elasticity ASTM C469
7 days.....3.21 x 10^6 psi
28 days.....4.13 x 10^6 psi

Shrinkage ASTM C157 (24 hour cure)
28 days.....-0.09%
56 days.....-0.11%

Scaling Resistance ASTM C672
15 cycles.....none
50 cycles.....none

Freeze/Thaw Resistance ASTM C666
105 cycles.....100% Relative Durability Factor
210 cycles.....100% Relative Durability Factor
300 cycles.....93.2% Relative Durability Factor

Set Time
Initial.....3 to 5 hours
Final.....5 to 7 hours

VANDEX UNI MORTAR 1 ZSR is concrete gray in color

Packaging

VANDEX UNI MORTAR 1 ZSR is packaged in 55 lb. (25 kg) bags.

Shelf Life

1 year in original, unopened package

Specifications/Compliances

VANDEX UNI MORTAR 1 ZSR is NSF (ANSI STD 61) certified for use with potable water.

Coverage

When mixed with 1 gal (3.8 L) of clean water, VANDEX UNI MORTAR 1 ZSR yields .48 ft^3 (0.013 m^3). This will cover approx. 22 ft^2 (2 m^2) at 1/4" (6 mm).

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Directions for Use

Surface Preparation: The surface must be structurally sound, clean and free of dirt, oil and other contaminants including curing compounds, form release agents, old coatings, paint and efflorescence. New concrete and masonry must be cured a minimum of 7 days. All concrete laitance must also be removed. Mechanically prepare the concrete to a CSP 3-5 in accordance with ICRI Guideline 310.2. Concrete honeycombs, cavities, joints, cracks, voids, tie holes and other defects must be opened and routed to a 3/4" (19 mm) depth or to sound material. No active water leaks shall be present at the time of application of VANDEX UNI MORTAR 1 ZSR. Use SPEED PLUG or VANDEX PLUG to stop all active leaks. Once prepared, the substrate needs to soak with water to a saturated, surface-dry (SSD) condition just prior to the application of the material.

Mixing: Mix the entire bag of VANDEX UNI MORTAR 1 ZSR with .8 to 1 gal (3 to 3.8 L) of clean water for at least 3 minutes. For single bags, add the correct amount of water to a clean pail, then slowly mix in the contents of the bag and mix with a drill and mortar mixing paddle. For multiple bag batches, use a horizontal shaft mortar mixer.

Application: After the substrate has been prepared as described above and the surface is in SSD condition, use a brush and apply a scrub coat of the mixed VANDEX UNI MORTAR 1 ZSR onto the substrate. Ensure that all cavities on the surface are filled. Once the scrub coat has been applied, apply the first lift of mortar. The scrub coat must be covered by the initial lift before it dries out or it will become a bond breaker. The minimum thickness per lift is 1/4" (6 mm), while the maximum is 1" (25 mm). If additional lifts are to be applied, wait approx. 2-4 hours for the last lift applied to tighten up. Using the side of a trowel or a brush, score or texture the visible layer to give the additional layers a mechanical bond as well as a chemical bond.

Spray: VANDEX UNI MORTAR 1 ZSR may be applied using appropriate spray equipment with compressed air. For spray equipment, the recommended air pressure is approx. 73 psi (43 MPa) with a delivery rate of 18 ft^3 (.5 m^3)/minute, using a 3/8" (9.5 mm) nozzle diameter. The first layer of VANDEX UNI MORTAR 1 ZSR is applied using a circular motion with nozzle at a 90° angle to the substrate. Use a trowel or brush to texture the top lift if additional material will be applied. If needed, spray apply additional lifts while the exposed layer is still "green" and can support the additional lift. Time between lifts is typically 2 to 4 hours, depending on local conditions.

Curing and protection: VANDEX UNI MORTAR 1 ZSR is cement based and will cure in the same fashion as ordinary concrete. For maximum effectiveness, it is essential that the material be wet cured for a minimum of 5 days. Once VANDEX UNI MORTAR 1 ZSR has hardened sufficiently, standard wet curing processes such as wet or fog spraying, or covering with polyethylene sheeting, wet burlap or burlene if a topical treatment is to be applied. If VANDEX UNI MORTAR 1 ZSR is going to be the final finish, a water-based curing compound must be applied. Backfilling can occur 3 days after placement and application of a curing compound. The mortar must be protected from rain during the first 24 hours and be protected from frost for at least 5 days. Use insulation blankets if necessary.

Application of topical treatments: Prior to the application of rubberized polyurethane/asphaltic type waterproofing compounds, waterproof sheeting or aesthetic coatings over top of VANDEX UNI MORTAR 1 ZSR repairs, the mortar needs to be at least 28 days old. In the event a cementitious waterproofing compound such as VANDEX SUPER or VANDEX BB 75 is going to be used over the repair, the VANDEX UNI MORTAR 1 ZSR needs to be dry enough to support the cementitious waterproofing without being damaged. This can usually happen the next day.

Filling of water retaining structures: Per standard water industry practices, filling of VANDEX UNI MORTAR 1 ZSR repaired structures can occur once the material has had sufficient time to cure. This is usually after 14 days, but if the project is fast tracked and requires quicker filling, consideration may be given after 7 days, but the material needs to be checked for sufficient hardness.

Clean-Up

Clean mixing and application equipment with water immediately after use. If allowed to dry on the surface, removal becomes extremely difficult.

Precautions/Limitations

- Condition all materials to room temperature at least 24 hours prior to use.
- Do not apply to frozen or frost filled surfaces or when temperature is below or expected to fall below 40°F (4°C) within 48 hours.
- Protect repaired substrates for 24 hours from rain.
- Protect repairs from frost for 5 days.
- Do not fill open cisterns, tanks, pools, etc. with water for at least 7 days. Inspect for hardness prior to filling.
- Allow minimum 3 days cure time (with curing compound) before backfilling. Use caution when backfilling early to prevent damage. The use of extruded polystyrene insulation or other fabricated protection courses are recommended.
- Allow 28 days before the application of coatings or waterproofing treatments.
- In all cases, consult the Safety Data Sheet before use.