Technical Data Sheet

ELEPHANT ARMOR®

DOT Concrete Repair Mortar

Elephant Armor® DOT Industrial Grade Mortar Technical Data Sheet

DESCRIPTION

Elephant Armor® Mortar - DOT is a single component, cementitious, fiber based, medium to fast setting, zero polymer, repair and overlay Engineered Ductal Mortar (EDM). In addition to a mechanical bond, our fiber creates a fully engaged molecular bond within our patented mortar matrix, providing extremely high tensile and flexural strength. It can be placed with a textured roller (preferred method) or traditional placement tools.

FEATURES / BENEFITS:

- Fiber reinforced: Superior flexural and tensile strength as thin as ¼".
- High ductility, allowing the overlay or repair to 'FLEX' without failure.
- Highly resistant to de-icing salts, freeze/thaw.
- Superior tensile strain capacity over other cement based products for improved crack resistance.
- Superior bond strength to that of other fiber and acrylic based mortars.
- Ideal as a structural underlayment.
- Prevents the propagation of existing cracks through the surface.
- Highly impermeable and abrasion resistant.
- Unparalleled as a stampable overlay.

SHELF LIFE

Up to 3 years in its original unopened package and stored in a humidity controlled environment. (Not exposed to moisture or high humidity.)

PACKAGING

- 10 lb (4.5 kg) plastic pails
- 50 lb (22.7 kg) plastic lined bags

COVERAGE/YIELD

A 50 lb (22.7kg) bag of Elephant Armor® Mortars will yield approximately 0.5 ft³ (0.014 m³) of material.

Applied at the following thicknesses, one 50 lb (22.7 kg) bag of Elephant Armor® Mortar will cover:

- ¼" (6.3 mm) – 22 ft² (2 m2)
- ½" (12.7 mm) – 11 ft² (1 m2)

Note: Coverage rates are approximate

PRIMARY APPLICATIONS

Walkways, curbs, ramps, slabs, spalls, cracks, airports-runways, taxiways and gates, bridges, ICF walls, parking structures, tunnels, dams, industrial plants or anywhere a high strength concrete repair mortar is called for.

Structural monolithic underlayment or overlay for interior and exterior applications.

Mixing

Mix the dry contents prior to adding water. Add approximately 5.5 - 6.5 US quarts (5.2 - 6.2 liters) of water (depending on desired slump). It is mandatory to thoroughly mix with a dual shaft power mixer. (example: ColloMix Xo 55 Duo) Due to our unique product design, this type of mixer is required to ensure sufficient shear capacity needed to properly provide a homogeneous mix. Do not use a drywall paddle blade. While mixing, ensure there is no unhydrated Elephant Armor® on the sides or bottom of the bucket, as this will alter the water/cement ratio. Continue mixing until the mixture is lump free and has achieved the desired consistency (slump) for your application. When mixing our ten pound buckets or a small amount of Elephant Armor® Mortar, a ½" drill or larger, using an egg beater, mortar or Jiffy Bit can be used. Actual mixing time will depend on mixer speed, shear capacity, and desired consistency or flow required.

TECHNICAL INFORMATION – Material Properties @ 75ºF (24ºC)

All GST material testing properties meet or exceed our published data. Test results are confirmed by third party Independent Laboratories.

Compressive Strength psi ASTM C109
4 hrs — 4,000 (27.72 MPa)
1 day — 5,500 (37.92 MPa)
7 days — 6,500 (44.81 MPa)
28 days — 7,000 (48.26 MPa)

Split Tensile Strength psi ASTM C 496
28 days — 600 (4.14 MPa)

Flexural Performance psi ASTM C 1609
28 days — 1,600 (11.03 MPa)

Modulus of Elasticity, ksi ASTM C469
(ASTM C39 for compressive strength)
7 days — 1,800 psi *(12.41 MPa)*
28 days — 2,700 psi *(18.62 MPa)*

Shrinkage ASTM C 928/ASTM C157
28 days stored in water % — 0.019
28 days stored in air % — 0.036

Electrical Indication of Concrete's Ability to Resist Chloride Ion Penetration ASTM C 1202
321.52 Charge Passed (coulombs)
Very Low Chloride Ion Penetrability

Set Times ASTM C 191
Initial set — approx. 50 min
Final set — approx. 70 min

Bond Strength psi ASTM C 882
28 days avg — 2500 (17.24 MPa)

Water-soluble Chloride (% by mass of concrete) **ASTM C1218**
50 days — 0.01391

Acid-soluble Chloride (% by mass of concrete) **ASTM C1152**
50 days — 0.03087

Coefficient of Thermal Expansion, in/in/°F **AASHTO T-336**
7 Days — 775
28 Days — 4.968 x10^{-6}