

**POLYMER MODIFIED MORTAR FOR VERTICAL AND OVERHEAD REPAIRS**

**DESCRIPTION**

PENETRON® V/O PATCH is a fast setting, one component, polymer modified, non-sag, cementitious patch, formulated for vertical and overhead repairs. PENETRON® V/O PATCH offers excellent adhesion and high build properties. It is a Portland cement based mortar having a comparable coefficient of thermal expansion to concrete, insuring compatibility with the substrate.

**RECOMMENDED FOR**

- ▶ Structural repairs of interior or exterior and above or below grade areas
- ▶ Rapid setting patching mortar for use on vertical and overhead concrete and masonry surfaces
- ▶ Restoration of architectural details, bridges, parking structures, tunnels, precast concrete products, retaining walls, balconies, etc

**ADVANTAGES**

- ▶ One component, polymer modified for superior bond
- ▶ Fast setting [2070 psi (14.3 MPa) in 1 hour]
- ▶ Easy to use. Just add water
- ▶ Excellent overhead hang capability of from 1/2" to 2" (13 mm to 50 mm)
- ▶ Trowel or hand apply
- ▶ Remains plastic for approximately 15 minutes, allowing shaping and sanding
- ▶ Cost effective. No forming needed
- ▶ Contains corrosion inhibitor for embedded steel total protection
- ▶ Zero VOC – Penetron powdered products contain zero volatile organic content and are safe for use both outdoors and in confined indoor spaces

**TECHNICAL CHARACTERISTICS**

Time	Test Results					
	Compressive Strength (ASTM C 109)	Flexural Strength (ASTM C 348)	Shear Bond (ASTM C 882)	Expansion/Shrinkage (ASTM C 157 modified per ASTM C 928)		Set Time (ASTM C 191) at 70° F (21° C)
				Air Cure	Water Immersion Cure	
1 hour	2070 psi (14.3 MPa)	-	-	-	-	-
3 hours	3710 psi (25.6 MPa)	-	-	-	-	-
1 day	5090 psi (35.1 MPa)	-	1430 psi (9.9 MPa)	-	-	-
7 days	6220 psi (42.9 MPa)	830 psi (5.7 MPa)	1590 psi (11.0 MPa)	-0.06%	+0.006%	-
28 days	7535 psi (52.0 MPa)	1000 psi (6.9 MPa)	-	-0.09%	+0.006%	-
Initial Set	-	-	-	-	-	Approx. 25 min.
Final Set	-	-	-	-	-	Approx. 30 min.

All data are average values obtained under laboratory conditions. Impractical use, temperature, humidity and absorption of the substrate may influence the above given values.

## POLYMER MODIFIED MORTAR FOR VERTICAL AND OVERHEAD REPAIRS

Composition	Polymer modified cement
Form	Powder
Colour	Grey
Working Time	20 minutes at 70 °F (21 °C)

**DIRECTIONS FOR USE**

**Surface Preparation:** Adjoining surfaces must be sound, clean, free of loose or damaged concrete, dust, dirt and other contaminants that will interfere with bond. Completely expose and clean all reinforcing steel, ensuring a minimum clearance of 3/4" (19 mm) behind reinforcing steel. Perform reinforcing steel preparation, in accordance with ICRI Technical Guidelines No. 03730. For the best results patch area edges should be saw cut to a depth of 1/2" (13 mm).

Abrade the concrete to obtain a rough surface thereby promoting adhesion. The area should be saturated surface dry (SSD) with no standing water. The use of a vigorously scrubbed-in no slump bond coat of PENETRON® V/O PATCH or a bonding agent (like PENETRON® ACRYLIC BONDCRETE™ or similar) is recommended. This should be applied to all surfaces coming into contact with the patch.

**NOTE:** Do not allow bond coat to dry prior to the placement of PENETRON® V/O PATCH.

**Mixing:** PENETRON® V/O PATCH requires 3½ to 4½ quarts (3.3 to 4.3 Lt) of water per 50 lbs (22.7 kg) of powder. Mix only the amount of material that can be placed in 20 minutes. Pour the required amount of potable water into a clean mixing container, then add the measured amount of PENETRON® V/O PATCH, while continuing to mix. Blend thoroughly for 2-3 minutes to a lump free putty like consistency and place. Small amounts of PENETRON V/O PATCH can be mixed using a trowel or a ½ " drill (400-600 rpm) and paddle.

**NOTE:** DO NOT over water, re-temper, over mix or aerate. To insure enough working time, a mixing batch of no more than 25 lbs (11.3 kg) is recommended.

**Mixing ratios:** Use 3½ to 4½ quarts (3.3 to 4.3 Lt) of clean, potable water per 50 lb (22.7 kg) PENETRON® V/O PATCH.

**Application:** Immediately apply the fresh mortar into the entire surface, forcing PENETRON® V/O PATCH firmly into the properly prepared area, insuring full contact with all bonding surfaces. Slightly overfill the area and after initial set, using a steel trowel, shave PENETRON® V/O PATCH to the desired final profile, shaving from the center towards the bond edge at the existing surfaces. A wet spray may help with final shaping. In deeper areas, additional lifts can be made, after the original patch has reached initial set (approximately 30 minutes). Score and roughen the original lift layer to improve bond between applications. PENETRON® V/O PATCH, used neat, can be placed in lifts up to 2" (50 mm) on vertical and overhead applications, by holding the mortar in place, until initial set takes place. For lifts higher than 2" (50 mm), add 30% of up to 3/8"(10 mm) graded quartz aggregates.

**Curing:** Cure in accordance with American Concrete Institute Procedure No. 308. Keep PENETRON® V/O PATCH moist and protected from high temperature, high wind, low humidity and direct sun causing rapid drying, by covering with wet burlap or plastic for up to 24 hours. A water based curing can be used.

**Coverage:** A 50 lb (22.7 kg) bag of PENETRON® V/O PATCH yields approximately 0.45 ft<sup>3</sup> (12.7 Lt). With addition of 15 lbs (6.8 kg) of 3/8" (10 mm) pea gravel or quartz sand aggregates, yield is approximately 0.55 ft<sup>3</sup> (15.6 Lt). The 10.5 lb (4.75 kg) pails of PENETRON® V/O PATCH yields approximately 0.1 ft<sup>3</sup> (2.7 Lt).

When applied as a slurry coat as bonding agent with the substrate and anti-corrosion protection coat, its coverage is 0.3 to 0.4 lb/ft<sup>2</sup> (1.5 to 2 kg/m<sup>2</sup>). All above values are approximate, depending on surface conditions.

**SPECIAL CONSIDERATION**

DO NOT bridge moving cracks, control or expansion joints.

Protect from conditions that cause early water loss; avoid wind, sunlight and heat.

The minimum application thickness is 1/4" (6 mm).

DO NOT over work, re-temper, over water or add admixtures.

Use proper methods to clean and abrade concrete/masonry.

DO NOT apply to frozen or frost covered areas. The minimum ambient and surface temperatures should be 40 °F (4 °C) at time of application. Hot weather and conditions above 80 °F (26 °C) will reduce working time and accelerate set, while cold temperatures below 40 °F (4 °C) will have a retarding effect.

Clean out the mixing container thoroughly after each batch, to avoid getting hardened mortar into the next batch.

Contact PENETRON HELLAS for additional information, regarding your project.

**PACKAGING**

PENETRON® V/O PATCH is available in 50 lb (22.7 kg) multi-wall bags with tear resistant, moisture proof, polyethylene liner and 10.5 lb (4.75) kg plastic pails.

## POLYMER MODIFIED MORTAR FOR VERTICAL AND OVERHEAD REPAIRS

**STORAGE / SHELF LIFE**

PENETRON® V/O PATCH must be stored in a dry enclosed area off the ground at a minimum temperature of 45 °F (7 °C). Shelf life, when stored in proper conditions in unopened, undamaged packaging, is 12 months.

**SAFE HANDLING INFORMATION**

Contains Portland cement which is alkaline. It may be irritating to eyes and skin. Avoid skin and eye contact. If contact is made, flush areas with lots of water and seek medical advice. Protective gloves should be worn. Breathing apparatus is advised if applied in enclosed environments. For further information please refer to Safety Data Sheet. PENETRON HELLAS S.A. has recently updated Safety Data Sheet on the safe use of PENETRON® products. Each Safety Data Sheet contains health and safety information for the protection of your employees and your customers. FOR PROFESSIONAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.

**WARRANTY - DISCLAIMER**

PENETRON HELLAS S.A. warrants that its products are manufactured under certified ISO Standard procedures, are of excellent quality and shall be free from material defects and contain all components in their proper proportion. Should any of the products be proven defective, the liability to PENETRON HELLAS S.A. shall be limited to replacement of the material proven to be defective, since the standard application procedures have been met and the suitability of the product for the particular application have been proven. PENETRON HELLAS S.A. makes no warranty as to merchantability of fitness for a particular purpose. User, after contacting the distributor of the product, shall determine the suitability of the product for his intended use and assume all risks and liability in connection therewith. While every care has been taken, the information provided in this product's data sheet make no part of any contract. All recommendations, technical data and test data contained in this product's data sheet are based upon the results of control laboratory tests or in actual field tests. However, PENETRON HELLAS S.A. makes no warranty of any kind, concerning this data. In any case, this data are given in good faith based in the PENETRON HELLAS S.A. experience, till the publication of this sheet. Due to variance in storage, handling and applications of the materials, PENETRON HELLAS S.A. accepts no liability for the results obtained. It is suggested that potential users try small applications to determine the suitability of each individual product for their specific requirements. The users should always refer to the most recent edition of the product's data sheet. PENETRON HELLAS S.A. may particularly differentiate its versions of the product's data sheet compared with those of PENETRON INTERNATIONAL LTD or respective PENETRON companies worldwide. These changes are due to text formatting, different application weathering and procedures or different product names and aim at the optimal consumer information.

**CERTIFICATION**

1085-CPR-0040  
EN 1504-3

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PENETRON V/O PATCH

Products and systems for structural and non-structural protection and repair of concrete structures  
Compressive strength: Class R3 ( $\geq 25$  MPa)  
Chloride content:  $< 0.10$  % by mass  
Adhesive bond: NPD  
Restrained shrinkage, expanding: NPD  
Elastic modulus: NPD  
Thermal compatibility (Part 1): NPD  
Corrosion behaviour: deemed to have no corrosive effect  
Dangerous substances: NPD  
Reaction to fire: NPD

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