SPECIALTY CONSTRUCTION PRODUCTS

ChemPatch™ Fast VO

Very Fast Setting Polymer Modified Concrete Repair Mortar with Fiber and Corrosion Inhibitor

P R O D U C T D A T A

DESCRIPTION

ChemPatch Fast VO is a one component, polymer modified, shrinkage compensated, very fast setting, non-shrink repair mortar with fiber and corrosion inhibitor. It's very fast set and superior finishing characteristics make **ChemPatch Fast VO** the ideal product for application of multiple lifts and structural repairs to vertical and overhead concrete. **ChemPatch Fast VO** is freeze/thaw stable, has high ultimate strength, density, durability, and corrosion inhibition properties.

USES

- Rapid structural and cosmetic repairs to any vertical or overhead concrete on bridges, parking garages or wherever high strength repair mortar is required
- Fills holes, spalls, cracks or honeycombs on vertical or horizontal concrete
- Restore disintegrated surfaces of old concrete and masonry, cornices, lintels, sills, handrails

ADVANTAGES

- Light weight for high build in vertical or overhead use
- Able to be applied in 1" to 1.5 " overhead lifts
- Integral fibers for added strength
- Includes corrosion inhibitor to protect steel reinforcement
- Non-shrink to provide structural repair of holes or cracks
- Excellent bond to existing concrete or masonry
- Dense for chloride ion repellency and durability
- Latex modification provides enhanced resistance to acids compared to standard concrete patching products
- Very rapid setting for minimal turnaround time
- Dries to a light concrete gray to blend better with surrounding concrete
- Contains no silica fume, gypsum, or metallic particles
- Easy to finish
- Versatile consistency for horizontal, vertical, and overhead repairs
- Does not require separate bonding agent for most applications

Packaging Product Number		
50 lb (22.7 kg) bag	56 per pallet	F2014.50

Estimating Guide	
Yield per bag	0.43 ft^3 (0.12 m^3)

DIRECTIONS

Surface Preparation: Surface must be free of all dust, dirt, loose concrete, oil, grease, old asphalt, curing and sealing compounds, form release agents, efflorescence, or other contaminants that might interfere with adequate bond. Square cut perimeter of holes or cracks to a minimum width of 3/4 inch (1.9 cm) and depth of 1 inch (2.5 cm), undercutting to sound concrete when possible. Do not V cut cracks.

Exposed reinforcing steel must be cleaned to bright metal, removing all rust or signs of oxidation. Chip out concrete behind or under rebar to a depth of 3/4 inch (1.9 cm). Coat clean metal with an epoxy bonding agent such as **Polyweld EPX^{CI}** to prevent further oxidation and deterioration.

Immediately prior to placement of **ChemPatch Fast VO**, remove any remaining dust or dirt with vacuum or oil free compressed air. Saturate surface with clean potable water to the point of rejection. Remove standing water or puddles.

Bonding: When undercutting or squaring the edges of the patch is impractical or when application must be made in hot or dry conditions, use **Cretelox** as the mixing liquid for the slurry bond coat. Do not allow slurry bond coat to dry out before application of the mortar. Do not add **Cretelox** to the **ChemPatch Fast VO** mortar itself. Refer to **Cretelox** product data sheet.

Mixing: **ChemPatch Fast VO** sets very rapidly. Mix only an amount that can be placed and leveled within 5 to 8 minutes. Condition the dry mortar and water to 65° to 75°F (18° to 24° C). Do not add accelerating or bonding admixtures. Do not add additional water or re-temper after initial mixing procedure.

To make mortar, measure 2 quarts (1.9 liters) of water into a clean mixing container, gradually add 50 pounds (22.7kg) of **ChemPatch Fast VO** to water and mix with high RPM, low speed drill with paddle for 2 to 3 minutes to achieve a smooth, slump free consistency for placement. Add up to 0.5 quarts (0.5 liters) of additional water only if needed. Do not over mix.

ChemMasters®
An American Owned & Operated Company
300 EDWARDS STREET • MADISON, OHIO 44057-3112 (440) 428-2105 • FAX (440) 428-7091 • ORDER LINE: (800) 486-7866 www.chemmasters.net

March 2019

Application: Due to its very rapid setting characteristics, place **ChemPatch Fast VO** mortar in lifts of not more than 1 to 1.5 inches (2.5 to 3.75 cm). Compact mortar firmly into repair to area filling all voids and air pockets paying special attention to spaces beneath any reinforcing steel. The top surface of each lift must have a 1/8 to1/4 inch (0.31 to 0.62 cm) raked profile. Keep surface of lift damp with fog spray, sprinkler hose or brush. Apply next layer within 12 to 18 minutes. When design depth is obtained, finish final placement to match surrounding surface texture.

Curing: **ChemPatch Fast VO** continues to gain strength as long as it is damp. It generates considerable heat when used in quantity. Keep cool by wetting. Repaired areas should be kept damp for 20 to 30 minutes or cured with a water based curing compound such as **Safe-Cure & Seal 309** or **Polyseal WB**. **ChemPatch Fast VO** gains strength very rapidly.

Special Applications

At temperatures exceeding 80°F (26.7°C), cool surface to be patched with cool, clean, tap water. Prior to mixing, keep material in cool place and use cold mixing water. Mix small batches that can be used quickly.

At temperature below 50°F (10°C), keep material warm and use lukewarm water to speed set.

Vertical / Overhead: Adjust consistency by using less water to make a stiffer mix.

LIMITATIONS

- **ChemPatch Fast VO** hardens in 20 to 30 minutes. Prepare only enough for immediate use.
- Do not use solvent based curing compounds.
- Recommended use of **Cretelox** acrylic bonding agent is limited to the slurry bond coat under high temperature or dry conditions as described above. Do not add **Cretelox** to **ChemPatch Fast VO** mortar.
- Do not apply to frozen or frosted surfaces, warm substrate to a minimum of 40°F (4°C) prior to application. Do not apply if ambient or substrate temperatures are below 40°F (4°C).
- Do not add sand or gravel to extend. Do not use any admixtures other than those recommended by Chem-Masters.

Storage: Optimum storage temperatures are between 40 and 90°F (4 and 32°C). Store unopened bags on pallets in a dry area. Shelf life of properly stored material is two years from the date of manufacture.

Precautions:

DANGER. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation. Suspected of causing cancer. May cause damage to organs (lungs) through prolonged or repeated exposure if inhaled.

Precautionary Statements: Do not breathe dust/fume/gas/mist/vapors/spray. Wash hands and skin thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing should not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

All label precautions and the Safety Data Sheet must be fully understood before using this product.
Keep out of the reach of children.

ChemPatch Fast VO
TECHNICAL DATA

ASTM C928, R3 Standard Specification for Packaged, Dry,
Rapid Hardening, Cementitious Materials for Concrete Repairs.

Test Formulation	
Material	**ChemPatch Fast VO**
Mixing Conditions	73°F @ 50% relative humidity
Batch Dates:	November 2015
Water Addition Rate:	9.5% (unless noted otherwise)
Curing:	Air Cure, for 2 days, then moist cure until testing unless noted

ASTM C157 Length Change (%) Average of three 1x1x 11 1/4 " specimens Initial readings at 3 hours per ASTM C928	
	28 day
Air Cured	-0.070
Water Cured	+0.012
Length Change of Hardened Hydraulic Cement Mortar & Concrete	

Test Results (Hardened) ACI 503R Direct Bond Strength (psi) Average of three 2" diameter cores Applied at 2" thickness over 4,500 sandblasted concrete		
1 day	7 day	28 day
278	349	372
Direct Tensile Test		

ASTM C348 Flexural Strength (psi) Average of three 40 x 40 x 160 mm specimens		
1 day	7 day	28 day
873	1,118	1,523
Flexural Strength of Hydraulic Cement Mortars		

Test Results (Plastic)	
ASTM C138 (Density (lbs/ft^3)	127.9
ASTM C191 Set Time (Vicat minutes)	Initial: 17 Final: 19

ASTM C469 Compressive Modulus of Elasticity (psi) Average of three 4 x8" cylinders
28 day
3.6 x 10^6
Static Modulus of Elasticity and Poisson's Ratio of Concrete in Compression

ASTM C109 Compressive Strength (psi) Average of three 2" cubes ChemPatch Fast VO		
1 day	7 day	28 day
6,500	7,580	9,060
Compressive Strength of Hydraulic Cement Mortars		

ASTM C496 Splitting Tensile Strength (psi) Average of three 3 x 6" cylinders	
7 day	28 day
441	500
Splitting Tensile Strength of Cylindrical Concrete Specimens	

ASTM C109 Compressive Strength (psi) Average of three 2" cubes ChemPatch Fast VO (10.4% water addition).		
1 day	7 day	28 day
4,050	4,380	5,280
Compressive Strength of Hydraulic Cement Mortars		

ASTM C666 Freeze Thaw Resistance : Procedure A Average of three 3 x 3 x 11 1/4" specimens Cured 28 days before testing. 300 cycles		
Durability Factor	Mass Loss	Surface Condition
96.4	0.0%	No change
Resistance of Concrete to Rapid Freezing and Thawing		

ChemPatch™ Fast VO
TECHNICAL DATA (continued)

ASTM C672 Salt Scaling (lbs/ft^2) Average of two 8 x 10 x 4" specimens	
Scaling Loss @ 25 Cycles	Scaling Loss @ 50 Cycles
0.0 lbs/ft^2 Rating 0 No Scaling	0.0 lbs/ft^2 Rating 0 No Scaling
Scaling Resistance of Concrete Surfaces Exposed to deicing Chemicals	

ASTM C882 Slant Shear Bond Strength (psi) Average of three 3 x 6" specimens cast per ASTM C928		
1 day	7 day	28 day
2,598	3,038	3,140
Bond Strength; of Epoxy-Resin Systems Used With Concrete by Slant Shear		

ASTM C1202 Rapid Chloride Permeability (coulombs) Average of two 2 x4" specimens
28 day
1,197 coulombs (low)
Electrical Indication of Concrete's Ability to resist Chloride Ion Penetration

M-DOT Direct Shear Bonding Strength (psi) Average of three bonded specimens Bonded 1" thick over 4 " concrete cube		
1 day	7 day	28 day
214	354	378

NYSDOT 503-3P Freeze Thaw Resistance % Average of three 2" cubes in lime-saturated water for 6 days prior to testing.
Mass Loss @ 25 cycles
0.0%
Freeze-thaw test