



ChemPatch™ Form & Pour

Form & Pour Repair Mortar

SPECIALTY CONSTRUCTION PRODUCTS

P R O D U C T D A T A

DESCRIPTION

ChemPatch Form & Pour is a one component, shrinkage compensated, cementitious fiber reinforced mortar with air entrainment, suitable for large scale form and pour applications. It exhibits excellent flow and pumping characteristics in a wide variety of environmental conditions, with exceptional freeze/thaw durability. **ChemPatch Form & Pour** has an extended initial set that prevents cold joints on large projects, while producing a high quality substrate surface that can be reliably stripped from forms within 24 hours. **ChemPatch Form & Pour** may be placed neat, or extended up to 60% with 3/8" pea gravel for deeper repairs.

USES

- Structural repairs requiring extended set times that may be stripped from forms within 24 hours
- As a flowable and pumpable mortar for form & pour repairs to columns, spans, barriers, etc.
- Full-depth patching of horizontal concrete

ADVANTAGES

- Reaches initial set in 90 minutes at 72°F (22°C)
- May be stripped from forms within 24 hours of placement under most situations
- Superior flow and pumpability in form and pour applications
- Repairs from 0.50 inch (1.3 cm) to full depth
- Non-shrink with exceptional bond strength
- May be placed at temperatures 40°F (4°C) to 85°F (29°C). If ACI 306 cold weather concreting standards are followed it is possible to place as low as 20°F (-6°C)
- Air entrainment for exceptional durability against freeze-thaw cycles and deicing chemicals
- May be extended for economical placement at depths greater than 1.5 inches (4 cm)

Packaging Product Number

50 lb (22.7 kg) bag	56 per pallet	F2015.50
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DIRECTIONS

For horizontal patching repairs at depths greater than 1.5 in (3.8 cm), an aggregate extension is required.

Estimating Guide

Yield per bag	0.42 ft ³ (0.12 m ³)
With 60% extension	0.60 ft ³ (0.017 m ³)

SURFACE PREPARATION:

Saw cut edges of area to be repaired to a minimum depth of one inch. Square cut sides for optimum performance and appearance. Do not cut the reinforcement. Remove all unsound concrete to be replaced along with all contaminants including dust, dirt, oil, grease and asphalt. Then mechanically profile existing concrete surfaces to be bonded to by shot blasting, abrasive blasting, water-jetting or scarifying to achieve a CSP of 5 or greater. Reference International Concrete Repair Institute (ICRI) Technical Guide #310.1 R-2008 for further details covering surface preparation. Any exposed reinforcing steel should be cleaned to bright metal.

Consult project engineer to determine if use of a bonding agent similar to **Polyweld EPX^{CI}** is recommended. If a bonding agent is not specified, saturate prepared area with clean, potable water. Remove any puddles or standing water immediately before placing mortar so that concrete is in a saturated surface-dry (SSD) condition.

MIXING

Mortar Mixer: Use a paddle type mortar mixer equipped with rubber tipped blades for blending **ChemPatch Form & Pour**. Start the mortar mixer. Before beginning first batch, pre-wet the blades and bucket with clean water, then dump out water. Pour 6 pints (2.8 L) of clean, potable water per bag to the mortar mixer first, then **ChemPatch Form & Pour**. Add up to an additional 1 pint (0.5 L) of mix water to achieve desired consistency. Mix 3 to 5 minutes until mixture is thoroughly wetted out and uniform in texture.

Single Bags: Single bags of **ChemPatch Form & Pour** may be mixed using a heavy duty 1/2" drill and paddle mixer. For patches from 1/2 to 1 inch deep, **ChemPatch Form & Pour** may be used neat. For deeper repairs, **ChemPatch Form & Pour** may be extended up to 60% with 3/8" pea gravel. Begin by adding 6 pints (2.8 L) of clean potable water per bag to the mixer, then to 30 pounds (13.6kg) of clean, hard, SSD 3/8 inch (0.95 cm) pea gravel.



ChemMasters®

An American Owned & Operated Company

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May 2018

followed by 50 lbs. of **ChemPatch Form & Pour** mortar while mixing. Adjust final flow by adding up to a maximum additional 1.5 pints (0.7 L) of additional mix water. Mix 3 to 5 minutes until mortar is uniform in texture with pea gravel evenly dispersed. Do not mix more mortar than can be placed and finished in 30 minutes.

APPLICATION:

The application range for **ChemPatch Form & Pour** is from 20° to 85°F (-7° to 29°C) when following ACI recommendations for hot and cold weather concreting practices. When applying below 40°F (4°C) strict attention to cold weather application must be followed.

After removing all standing water from the repair area, **ChemPatch Form & Pour** may be placed into forms, ensuring all voids are completely filled. Gently tamp or vibrate form exterior for best results.

Curing:

- Leave the formwork in place until the compressive strength reaches 2,500 psi (17.2 MPa) or a strength specified by the engineer.
- Cure with an approved curing compound compliant with ASTM C309 or preferably ASTM C1315. If the repair area will receive a coating wet curing is recommended. When top coating with a high-performance coating allow **ChemPatch Form & Pour** to cure for 24 hours at 72°F (22°C) before priming or coating.
- **ChemMasters** produces a wide range of curing compounds and curing & sealing products that meet these specifications. If **ChemPatch Form & Pour** is to be top coated with an epoxy or methyl methacrylate coating, allow **ChemPatch Form & Pour** to cure for 4 hours at 72°F (22°C) before priming or coating.
- If coating with a polyester or vinyl ester coating, allow 24 hours of cure at 72°F (22°C) prior to priming. Contact your **ChemMasters** representative for additional information.

LIMITATIONS

- At temperatures over 90°F (32°C), cool the mixing water and bags to extend working time. Cover with wet burlap after placement to cool surface until final set is achieved.
- In cold weather, below 50°F (10°C), warm the material and water to result in a 70°F (21°C) mixed temperature and preheat the area to be patched.
- Cover patches with insulating materials in cold ambient temperatures below 40°F (5°C).
- Do not featheredge. Minimum depth is 0.5 inches (1.3 cm).

Storage: Cover unopened bags on pallets in a dry area. Shelf life of properly stored material is 18 months 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 Form & Pour

TECHNICAL DATA

Test Formulation

Material	ChemPatch Form & Pour
Mixing Conditions	73°F @ 50% relative humidity
Water Addition Rate:	Neat: 3.5 quarts of water per 50 lbs of ChemPatch Form & Pour Extended: 3.6 quarts water per 50 lbs ChemPatch Form & Pour with 25 lbs 3/8" ssd pea gravel
Curing:	Wet Cured then air cured for 24 hours before test

ASTM C138: Density (Fresh Wet Density)

Density (Neat)	135.1 lbs/ft ³ (2167 kg/m ³)
Density (Extended)	141.0 lbs/ft ³ (2262 kg/m ³)

ASTM C191: Set Time (Vicat)

Initial Set	1 hr 30 min
Final set	2 hr 30 min

ASTM C1611: Slump Flow

Neat	28.00 inch (Rating 1 no segregation)
Extended	26.25 inch (Rating 1 no segregation)

ASTM C109 Compressive Strength psi (MPa)

1 day	7 day	28 day
3,850 (26.5)	7,420 (51.1)	9,100 (62.7)

ASTM C39 Compressive Strength psi (MPa)

1 day	7 day	28 day
2,970 (20.5)	5,690 (39.2)	6,720 (46.3)

ASTM C469 Compressive Modulus of Elasticity

28 day	3.13 x 10 ⁶ psi (16.76 x 10 ³ MPa)
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ASTM C348 Flexural Strength psi (MPa) Average of three 40 x 40 x 160 mm specimens

1 day	7 day	28 day
740 (5.1)	1,320(9.1)	1,480 (10.2)

ASTM C157 Length Change (%) Neat

28 day air cured	28 day water cured
-0.122	+0.015

ASTM C157 Length Change (%) Extended

28 day air cured	28 day water cured
-0.068	+0.007

ASTM C496 Splitting Tensile Strength

28 day
640 psi (4.4 MPa)

ASTM C666 Freeze-Thaw Resistance Procedure A

Durability Factor @ 300 cycles	94.6
Mass Loss @ 300 cycles	0.5%
Surface Condition @ 300 cycles	Slight scaling

ASTM C882 Slant Shear Bond Strength psi (MPa)

1 day	7 day	28 day
1,940 (13.4)	3,050 (21.0)	3,210 (22.1)

C672 Salt Scaling (lbs/ft³)

Scaling Loss @ 25 Cycles	0.0 lbs/ft ³ Rating (No Scaling)
Scaling Loss @ 50 Cycles	0.3 lbs2ft ³ 1 Very (Slight Scaling)

CRD-C39 Coefficient of Linear Thermal Expansion

28 days
8.8 x 10 ⁻⁶ in/in/°F (15.8 x 10 ⁻⁶ cm/cm/°C)

ASTM C1202 Rapid Chloride Permeability

28 day
<800 Coulombs (Very Low)

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TECHNICAL DATA

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FOR BEST RESULTS AND SAFEST USAGE, USER IS SPECIFICALLY DIRECTED TO CONSULT THE CURRENT PRODUCT & SAFETY DATA SHEETS AND PACKAGE LABEL FOR THIS PRODUCT. We warrant our products to meet our published specifications and to be free from defects in materials and workmanship to the acceptable quality levels defined in these specifications. If acceptable quality levels are not specified, the acceptable quality levels will be those normally supplied by us for the product. We make no guarantee of the results to be obtained from the use of our products. The determination as to the adaptability of any of our products to the specific needs of the Buyer is solely Buyer's prerogative and responsibility. We are glad to offer suggestions on the use of our products. Nevertheless, there are no warranties given except such expresses warranties offered in connection with the sale of a particular product. Our liability shall be limited to replacement of, or refund of an amount not to exceed the purchase price attributed to, the goods as to which such claim is made. Our selection of one of these alternatives shall be Buyer's exclusive remedy. IN NO CASE SHALL WE BE LIABLE FOR CONSEQUENTIAL OR SPECIAL DAMAGES, EVEN IF WE HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES. THE FOREGOING WARRANTIES ARE IN LIEU OF ALL OTHER WARRANTIES, GUARANTEES, CO-CONDITIONS AND REPRESENTATIONS, EITHER EXPRESSED OR IMPLIED, WHETHER ARISING UNDER ANY STATUTE, COMMON LAW, USAGE OR TRADE, COURSE OF DEALING OR OTHERWISE, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.