

PIP Rapid Mortar

Cementitious Structural Mortar



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DESCRIPTION

PIP Rapid Mortar is a one component, high performance structural repair mortar. It produces high early strengths at a wide range of temperatures. Areas repaired with **PIP Rapid Mortar** can be returned to rubber wheeled traffic in only 2 hours (depending on temperature). **PIP Rapid Mortar** meets ASTM C928 for rapid repairs of concrete and can be extended with pea gravel up to 60% for deep placements.

USES

- Structural filling holes subject to heavy traffic
- Full-depth patching of horizontal concrete
- Pitching and sloping

ADVANTAGES

- Initial set in 13-19 minutes at 72°F (22°C)
- Accepts polymer coatings on 24 hours
- Repairs from 0.50 inch (1.3 cm) to full depth
- Nonshrink with exceptional bond strength
- High early strength gaining 3000 psi (21 MPa) in 2 hours at 72°F (22°C)
- May be placed at temperatures down to 20°F (-6.7°C) if ACI 306 cold weather concreting standards are followed
- Accepts rubber wheeled traffic over road surfaces or industrial facilities in one hour
- Resists freeze-thaw cycles and deicing chemicals.
- May be extended for economical placement at depths greater than 1.5 inches (4 cm)

PACKAGING AND ESTIMATING GUIDE

PIP Rapid Mortar is packaged in poly lined, 50 pound (22.7 Kg) bags, shipped 60 bags per pallet.

Yield per bag	0.42 Ft ³	.012 M ³
With 60% extension	0.60 Ft ³	.017 M ³
Material Estimate	10 Ft ² @ 0.5 in.	.9 M ² @ 1.3 cm
With 60% extension	3.6 Ft ² @ 2 in.	.33 M ² @ 5 cm

TECHNICAL DATA

ASTM C 928, R3 standard specification for packaged, dry, rapid-hardening, cementitious materials for concrete repairs

State of Ohio Department of Transportation Supplemental Specification 819

Set Times (ASTM C 191 / Vicat Method) at 72°F (22°C)

Initial: 13-19 minutes Final: 20-25 minutes

Compressive Strength (ASTM C 109) 2 inch cubes

1 hour	1500 psi	10 MPa
2 hours	3000 psi	21 MPa
1 day	6000 psi	41 MPa
3 days	7000 psi	48 MPa
7 days	8000 psi	55 MPa
28 days	9000 psi	62 MPa

Flexural Strength (ASTM C-348)

1 day	850 psi	6 MPa
7 days	1000 psi	7 MPa
28 days	1200 psi	8 MPa

Slant Shear Bond Strength (ASTM C-882)

1 day	2500 psi	17 MPa
7 days	3000 psi	21 MPa
28 days	3200 psi	22 MPa

Scaling Resistance (ASTM C672)

weight loss in pounds per square foot		
	CaCl ₂	NaCl
25 cycles	0.003	0.067
50 cycles	0.005	0.084

Freeze/Thaw Durability (ASTM C-666A)

percent RDM 98.3

Rapid Chloride Permeability (ASTM C1202 / AASHTO T277)

typical from 3 days moist cure / 39 days air cure
coulombs 960 very low

DIRECTIONS

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

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. Any exposed reinforcing steel should be cleaned to bright metal and coated with an epoxy to prevent further oxidation and deterioration.

Unless a bonding agent will be used, 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 condition (SSD).

MIXING: Use a paddle type mortar mixer equipped with rubber tipped blades for blending **PIP Rapid Mortar**. Start the mortar mixer. Before beginning first batch, pre-wet the blades and bucket with clean water, then dump out water.

Use no more than 2.5 quarts (2.4 liters) of water per bag of **PIP Rapid Mortar**. Pour up to 2.5 quarts (2.4 liters) of water per bag of **PIP Rapid Mortar** into mixer first. Add the **PIP Rapid Mortar** and mix for 3-5 minutes until mixture is thoroughly wetted out and uniform in texture.

For patches from 1/2 - 1 inch deep, **PIP Rapid Mortar** may be used neat. For deeper repairs, add up to 30 pounds (13.6 Kg) of clean, hard, SSD 3/8 inch (0.95 cm) pea gravel per bag to the mixing water prior to adding the **PIP Rapid Mortar**. Mix mortar for 3 minutes. Mortar should be uniform in texture with pea gravel evenly dispersed.

Do not mix more mortar than can be placed and finished in 10 minutes.

PLACEMENT: The application range for **PIP Rapid Mortar** is from 20° to 85°F (-7° to 29°C). Follow ACI recommended concreting practices for hot and cold weather. After removing all standing water from the area to be patched, thoroughly scrub in a thin

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layer or bond coat onto the surface with a stiff bristled broom or brush. Do not dilute the bond coat. Do not apply more bond coat than can be covered with mortar before the bond coat dries. Do not re-temper the bond coat. After the bond coat, immediately place **PIP Rapid Mortar** into prepared area. Carefully tamp and compact mortar under reinforcing steel, into corners and around edges, filling voids and eliminating air pockets. **PIP Rapid Mortar** should be placed at full depth rather than in lifts or layers. Screed to grade. **PIP Rapid Mortar** is designed to have a float or broom texture.

CURING: If **PIP Rapid Mortar** will not be top-coated, wet cure for a minimum of 1 day followed by an application of a curing compound that meets ASTM C309 or ASTM C1315. Protective Industrial Polymers produces a wide range of curing compounds and curing & sealing products that meet these specifications.

If **PIP Rapid Mortar** is to be top-coated with an epoxy or methyl methacrylate coating, allow **PIP Rapid Mortar** to cure for 4 hours at 72°F (22°C) before priming or coating. If the **PIP Rapid Mortar** is to be coated with a polyester or vinyl ester coating, allow 24 hours of cure at 72°F (22°C) prior to priming. Ensure that the **PIP Rapid Mortar** is prepared per the coating surface preparation instructions prior to coating application. Protective Industrial Polymers produces a wide range of polymer coatings and toppings for floors. Contact your Protective Industrial Polymers 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 and store on pallet in a cool, dry area. Shelf life of properly stored material is 18 months from date of manufacture.

CAUTIONS

May cause eye and respiratory tract irritation. Over exposure may cause skin irritation. Do not take internally. Keep out of reach of children.

Make certain that the most current versions of the product data sheet and MSDS are being used. Contact Protective Industrial Polymers customer service at 1-866-361-3331 to verify the most current version.

TECHNICAL SUPPORT: For application questions, please contact your salesman or PIP technical service at 440-243-4560.

READ SDS (SAFETY DATA SHEET) FOR SAFETY AND PRECAUTIONS. USE PRODUCT AS DIRECTED FOR INDUSTRIAL USE ONLY. KEEP OUT OF REACH OF CHILDREN.

WARRANTY AND CONDITIONS OF USAGE

WARRANTY AND LIMITATION OF LIABILITY: Protective Industrial Polymers Inc. ("PIP") warrants that its products shall conform to the manufacturer's written specifications and shall be free from defects for one (1) year from the date of purchase. PIP MAKES NO WARRANTIES, IMPLIED OR OTHERWISE, AS TO THE MERCHANTABILITY OR FITNESS FOR PARTICULAR PURPOSES OF ITS PRODUCTS AND EXCLUDES AND DISCLAIMS THE SAME, INCLUDING, WITHOUT LIMITATION, FAILURE OF THE PRODUCT DUE TO ACTS OF GOD, FLOODING, EXTREME OR ABNORMAL TEMPERATURES, HUMIDITY AND MOISTURE, STRUCTURAL CONDITIONS, SITE PREPARATION AND CONDITIONS, ACCIDENTS, DAMAGE CAUSED BY INSTALLATION OF MACHINERY, EQUIPMENT OR FIXTURES WITHOUT ADEQUATE FLOOR PROTECTION OR WITHOUT ADEQUATE TIME FOR CURING, FAILURE TO COMPLY WITH CONDITIONS OF USAGE (SPECIFIED BELOW), VANDALISM, NEGLIGENT OR INTENTIONAL ACTS OF THIRD PARTIES OR OTHER CASUALTIES. If any PIP product fails to conform to this warranty, PIP shall either replace the product at no cost to Buyer or refund the cost of the product, in PIP's sole discretion. Replacement of any product or a refund of the cost of any product shall be the sole and exclusive remedy available to buyer, and buyer shall have no claim for incidental, special or consequential damages, including, without limitation, business interruption damages. Any warranty claim must be made within one (1) year from the date of delivery of products. PIP does not authorize anyone on its behalf to make any written or oral statements which in any way alter PIP's warranty or installation and storage information or instructions in its product literature or on its packaging labels. Any installation of PIP products which fails to conform to such installation information or instructions or the "Conditions of Usage" (specified below) shall void this warranty. Product demonstrations, if any, are done for illustrative purposes only and do not constitute a warranty or warranty alteration of any kind. Buyer shall be solely responsible for determining the suitability of PIP's products for the Buyer's intended purposes.

CONDITIONS OF USAGE: Installation of all products purchased must be by professional installers periodically published by PIP or otherwise approved by PIP in writing. Modification to any of PIP's products voids the warranty. The installer shall maintain a written contemporaneous record of field conditions (including, without limitation, surface and atmospheric conditions, usage rates, and lot numbers of products installed). PIP reserves the right of inspection of any installed product, installation and maintenance records and records of field conditions and may conduct additional testing as is reasonably required to investigate any warranty claims. Warranty shall only apply for products or materials that have been paid for in full. Moisture Vapor Transmission (MVT) and ASR (Alkali Silica Reaction) Disclaimer and Exclusion: Although rare, some floors at or below grade level are sometimes subjected to saturation by moisture from beneath the concrete floor slab. This moisture can travel through the concrete and collect between floor toppings creating the potential for delaminating from hydrostatic pressure and or ASR. Conditions contributing to this include heavy rainfall, broken pipes, excess hydration within fresh concrete, and other factors or defective and old concrete. These factors are difficult, if not impossible to predict. PIP recommends testing for MVT and/or the presence of ASR in the concrete substrate prior to applying any polymer floor topping. The recommended test method for MVT is ASTM F 2170-11. ASR can be predicted by a higher than normal pH within the concrete. If high pH should be detected, it is recommended a lab test for ASR. If and when delamination of the floor occurs because of a moisture condition that exists beneath or in the concrete slab beyond the capacity of the individual product installed or failure of the concrete due to ASR, this Limited Warranty does not extend to such delaminating or topping failure. This writing constitutes the sole and only agreement of warranty relating to PIP products.