



REMR Material Data Sheet CM-PC-2.1

FAST SETTING PATCHING MATERIALS: PENATRON
R/M-3003

1. NAME

Penatron R/M-3003

2. MANUFACTURER

Accelerated Systems Technology
Corporation
140 Chaparral Court
Suite 100
Anaheim Hills, CA 92808
Telephone: 714-263-9074

3. DESCRIPTION

Penatron R/M-3003 is a two-component flexible hybrid polymer used for rapid repair of spalled and cracked concrete.

4. USES

R/M 3003 is used for the repair of concrete structures such as highways, airfields, bridges, floors, or any concrete structure that require repairs of

- Spalls
- Overlays
- Large cracks
- Bridge headers/joints area repair
- Concrete to asphalt

5. MANUFACTURER'S TECHNICAL DATA

Penatron R/M-3003 begins its reaction when the "A" and the "B" sides unite. Penatron begins to gel, remaining workable, in about 5 to 7 min. This product can still be moved and squeegeed to the proper level and grade as required by the area in which the repair is made. Penatron is designed to allow for thermal cycling of the concrete substrate it is adhered to and for flexing and movement without further damage to the concrete. Penatron completely seals and waterproofs the repaired area.

The polymer is a 100-percent solids liquid that contains no solvents. It does not have to be heated for cold applications. The color after curing is a gray/tan.

Physical Properties:

Hardness, Durometer A.....	85
Tensile strength, psi.....	750
Tear strength, Die C, pli.....	180
Taber abrasion, mg loss.....	112
Elongation, %.....	300
Dry bond center point loading, psi.....	2,000
Gel time at 77 °F, min.....	5

Penatron R/M-3003 is available in

The 1-gal kit with everything needed to make a repair: mixing bucket, mixing stick, gloves, trowel, specification rock, and 4 qt of product. Everything is packed into a 3-1/2-gal plastic bucket so that the kit is weather proof.

The 4-gal kit for larger applications contains 2 gal of "A" and 2 gal of "B" in gallon cans, packed in a four-can box with instructions.

The 4-gal kit also comes in plastic pails for faster production for larger requirements. Four gallons can be mixed at one time for 50 sec and poured into the prepared repair area. This procedure makes the application about as fast as using a dispensing machine!

Volume packaging is a 110-gal kit supplied in two 55-gal drums for machine dispensing.

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: Clean the area of all loose or unsound concrete. Use a chipping hammer or sandblast to remove all contaminants, oil, grease, dust, and dirt. The surface must be clean, rough concrete. If repairing next to steel, sandblast the steel. Although the product is not sensitive to moisture, better bond to the concrete is created when the repair area is dry. Use a torch, weed burner, or dry compressed air to dry the area before application.

Filling of repair area with aggregate: First fill the cavity within the area to be repaired with specification aggregate to grade. The aggregate shall be consistent 1- to 3/4-in. maximum size without fines passing the 1/2-in. sieve. Aggregate meeting the required gradation and shape can be obtained from the manufacturer in 300- or 50-lb bags.

Mixing and placement: When using the hand-mixed, premeasured polymer repair units, place the A component into the mixing container first. Slowly pour in the B component while mixing with a wooden paddle or jiffy mixing blade attached to a drill. Mix components for 50 to 60 sec. Immediately after

mixing, pour over and through the rock until the spall is full to the finish grade. The product will begin to set in 7 to 9 min and will support traffic in 45 min after placement. The product can be machine mixed with a two-component proportioning unit with an inline mixer.

7. CORPS OF ENGINEERS' EVALUATION

<u>Properties</u>	<u>Test Method</u>	<u>Test Results</u>
Tensile strength, psi	ASTM D 638	610
Elongation, %	ASTM D 638	230
Bond strength to concrete, psi	Flexural beam test method*	310
Thermal compatibility with concrete	ASTM C 884	Passes test
Gel time, 100 g mass, 73 °F, min	ASTM C 881	5
Linear shrinkage during cure, %	ASTM D 2566	0.02

* A concrete beam was sawed in half, and the surfaces of the two cross-sectional areas cleaned. The two half beams were placed together leaving a 1/2-in. void between the two. The void was then filled with the material under test. After curing for 14 days, the beam was tested for flexural strength.

Plastic beakers (400-ml size) were filled with a 1-in. gravel and a 3/4-in. crushed limestone aggregate. The product was mixed and poured over the aggregates to determine if the material would penetrate full depth and fill the voids between the aggregates. Full-depth penetration was not successful when the product was poured over both types of aggregates.

Gradation and shape of the aggregate used is critical for an application of this type. One should obtain aggregate from the manufacturer or test for penetration before repairs are made.

8. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of activities involving potentially hazardous and toxic chemical substances. Manufacturer's recommendations to protect occupational health and environmental quality should be carefully followed. Material safety data sheets must be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous toxic materials.

9. AVAILABILITY & COST

The material is available from the manufacturer, and the cost is \$39.00 for a 1-gal kit and \$148.00 for a 4-gal kit (prices FOB, Anaheim Hills, CA 92808).