



REMR MATERIAL DATA SHEET CM-PC-1.8
 CONCRETE PATCHING MATERIAL: FIVE STAR
 STRUCTURAL CONCRETE

1. NAME

Five Star Structural Concrete

2. MANUFACTURER

US Grout Corporation
 401 Stillson Road
 Fairfield, CT 06430
 Telephone: 203-336-7900

3. DESCRIPTION

Five Star Structural Concrete is a high-strength, permanent concrete repair material that forms an integral bond with the surrounding substrate. Five Star Structural Concrete is fast setting and is designed to permanently patch structural members, high-traffic floors, vertical walls, and anchoring.

4. APPLICATION SPECIFICATION

ASTM C 928, "Standard Specification for Packaged Dry, Rapid-Hardening Cementitious Materials for Concrete Repairs."

5. USES & ADVANTAGES

Uses: Five Star Structural Concrete is designed for use on concrete floors and walls, concrete foundations, honeycombed concrete, setting of anchors and railings, snap-tie holes, and concrete sidewalks or steps.

Advantages: The product is economical and requires only the addition of

water. It is highly versatile, is compatible with concrete, and provides permanent repair. It has high bond strength, is dimensionally stable, and has rapid strength gain.

6. MANUFACTURER'S TECHNICAL DATA

Mechanical data:

Compressive strength:

ASTM C 109*	1 hr	2,000 psi
	3 hr	4,000 psi
	1 day	5,000 psi
	7 days	7,500 psi

Bond strength:

ASTM C 882*	1 day	2,000 psi
	7 days	3,000 psi

Dimensionally stable:

ASTM C 157*	Dry	+0.0%
	Wet	+0.0%

Thermal coefficient of expansion:

ASTM C 531	5.0×10^{-6} /in./°F
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Set time:

ASTM C 191	30 min
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Yield per 50-lb pail 0.4 cu ft

* Modified.

Packaging: Heavy-duty, resealable, 50-lb plastic pails.

Yield: A 50-lb pail mixed with the required amount of water produces approximately 0.4 cu ft.

Storage: Five Star Structural Concrete should be stored in a cool

(70° F), dry place in accordance with ACI recommendations. The pail should be resealed for storage.

7. MANUFACTURER'S GUIDANCE FOR APPLICATION

Placement guidelines: Five Star Structural Concrete is a patented, multipurpose, permanent concrete repair material. It is designed to be an easy-to-use and economical material for rehabilitation of concrete. The deteriorated concrete must be clean and sound. Five Star Structural Concrete may be hand mixed for small applications or machine mixed for large applications. The consistency can be varied by adding different amounts of water to make it trowelable for vertical applications or flowable for horizontal applications. Five Star Structural Concrete cures by having the hardened surface soaked with water for 30 min after set. Detailed placement instructions are on the pail.

Specification guidelines: All concrete and masonry repairs shall be performed with Five Star Structural Concrete as manufactured by US Grout Corporation, Fairfield, CT. The material shall provide a minimum 2,000-psi compressive strength in 1 hr and a bond strength of 2,000 psi in 1 day. Patching materials shall be mixed and installed in accordance with manufacturer's recommendations. No substitutions will be permitted. Technical service shall be made available by manufacturer upon request.

8. CORPS OF ENGINEERS' EVALUATION

Technical data:

Performance Properties

Compressive strength, psi

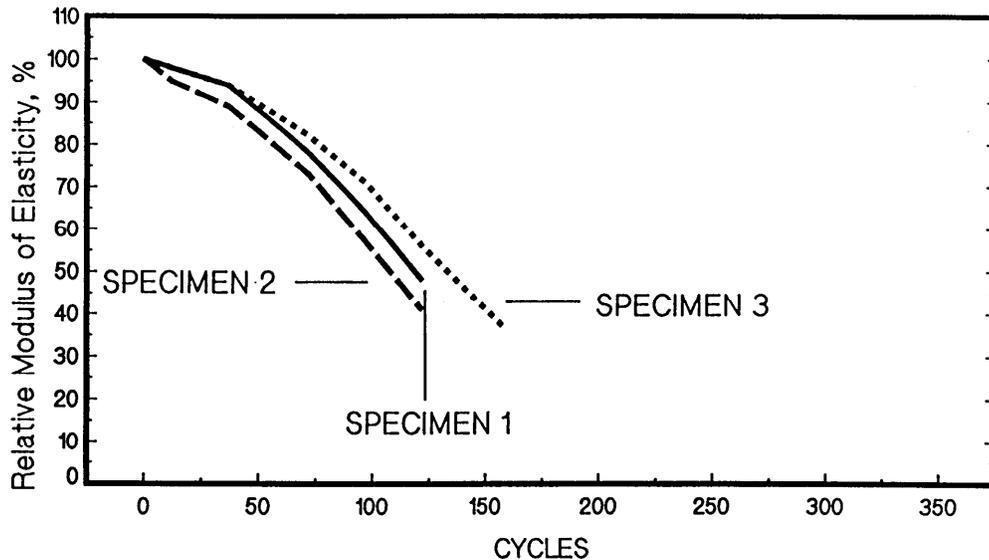
<u>Test Method</u>	<u>Results</u>
ASTM C 109	2,720
1 hr	
2 hr	3,730
3 hr	4,310
ASTM C 39	
24 hr	5,120
28 days	7,620
Modulus of elasticity, psi	
ASTM C 469	
24 hr	3.67×10^6
28 days	4.51×10^6
Flexural strength, psi	
ASTM C 78	
3 hr	450
24 hr	430
28 days	930
Bond to concrete, psi	
ASTM C 882	
24 hr	2,090
28 days	2,610
Shrinkage, percent	
GR-83-10*	
(unconfined condition)**	0.049
(concrete patch) ⁺	0.003

* Bureau of Reclamation Technical Report Standard.

** An exotherm of 24° F was reported on the shrinkage specimen using a mix design of 50 lb of material, 25 lb of pea gravel, and 3 qt of water.

+ An exotherm of 10° F was reported on the shrinkage specimen using a mix design of 50 lb of material, 25 lb of pea gravel, and 3 qt of water.

Rapid Freezing and Thawing, ASTM
C 666, Relative Dynamic Modulus of
Elasticity:



9. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of concrete patching 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 should 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.

203-336-7900. International Construction Products Research at 203-336-7950 will provide international availability.

Cost: The material sells FOB New Orleans for \$28.00 per 50-lb bag.

11. TECHNICAL SERVICES

The Home Office will provide more technical information and help.

10. AVAILABILITY & COST

Availability: Five Star Structural Concrete is manufactured throughout the United States and is available through a local Five Star dealer. The nearest source can be located by calling 800-243-2206 or in Connecticut