



REMR Material Data Sheet CM-PC-1.34

CONCRETE PATCHING MATERIALS: 88-H-1 STRESS RELIEVED EPOXY BINDER

1. NAME

88-H-1 Stress Relieved Epoxy Binder

2. MANUFACTURER

George W. Whiteside Company
 3048 W. Muhammad Ali Boulevard
 Louisville, KY 40212
 Telephone: 502-778-4492

3. DESCRIPTION

88-H-1 Stress Relieved Epoxy Binder is a 100-percent solids, two-component epoxy resin formulated as a binder for aggregate in making epoxy mortar and concrete for repairing portland cement concrete.

4. USES

For repair of portland cement concrete pavements, floors, and structural members when an epoxy mortar or concrete is recommended for the repairs. May also be used for thin overlays when chemical or abrasion resistance is needed and for skid resistance.

5. MANUFACTURER'S TECHNICAL DATA

88-H-1 is a 100-percent stress-relieved epoxy system of medium viscosity. It meets the requirements of ASTM C 881-90, Type III, Grade 2, Class C. It is normally gray in color, but special colors can be produced as required.

<u>Property</u>	<u>Test Method</u>	<u>Results</u>
Gel time, 60°F	ASTM C 881	1 hr
Viscosity, 73°F, cP	ASTM D 2393	2,000
Epoxy equivalent, wpe	ASTM D 1652	238
Water absorption, %	ASTM D 570	0.28
Bond strength to concrete, psi	ASTM C 882	1,560
Shrinkage	ASTM C 883	Passes test
Thermal compatibility	ASTM C 884	Passes test
Tensile elongation, %	ASTM D 638	81

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Mixing: The manufacturer recommends mechanical mixing of the epoxy resin components. Mixing equipment may consist of polyethylene mixing pans or boxes with rounded corners. Polyethylene scrapers are helpful in removing epoxy from cans. A power hand drill fitted with a mixing paddle will be acceptable, but electric power mixers using 5-gal pails are ideal for repeat jobs.

The manufacturer recommends that a can opener be used to cut the bottoms out of the Part A and B containers just before mixing. This will enable personnel to remove all material from the can. The entire contents must be used to ensure a proper mix. The mixing ratio of the two components is 5 parts A component to 2 parts B component by volume.

Mix the two components until a uniform gray color is obtained. Add sand and aggregate and mix thoroughly. A 40- to 50-mesh dry silica sand is recommended. A sand blast sand has been found to be satisfactory. For epoxy concrete, use clean, washed, dry pea gravel. Aggregate should not exceed in size 1/3 of the depth of repair. A ratio of 60-percent aggregate to 40-percent sand by weight should be used in preparing epoxy concrete. For epoxy mortar, a starting mixture of 3-1/2 volumes of sand per volume of epoxy resin is recommended. For epoxy concrete, 4 to 6 volumes of sand-aggregate mixture to 1 volume of epoxy resin is recommended.

Placement: Epoxy mortar is recommended if the depth of repair is 1/4- to 3/4-in. If more than 3/4 in., epoxy concrete should be used for economy. Use steel trowels to smooth the epoxy concrete. Occasionally wiping trowels with a wet cloth will prevent the epoxy from sticking to the steel. Trowels may also be used for compacting the epoxy concrete.

Surface preparation: The concrete surface should be sound and free of oil, chemicals, or other surface contaminants. Chipping hammers, sand, or high pressure water blasting will be useful in removing laitance, dust, and loose or spalled concrete. Remove all loose sand and standing water to surface dry condition. Forming when necessary can be done with plywood wrapped with polyethylene sheeting stapled or tacked in place.

7. CORPS OF ENGINEERS' EVALUATION

The Waterways Experiment Station (WES) tested the epoxy resin in accordance with ASTM C 881-90 "Standard Specification for Epoxy-Resin-Base Bonding Systems for Concrete. The epoxy resin met the requirements found in ASTM C 881 for a Type III, Grade 2, Class C epoxy resin. WES personnel oversaw the repairs of joint spalls located on a parking apron at Barksdale AFB, Louisiana, in 1989, using epoxy concrete prepared from 88-H-1. The repairs were inspected approximately 1 year after they were made, and the repairs were performing satisfactorily.

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

Availability: The material is available from George W. Whiteside Company and is packaged in 0.7- and 4.84-gal kits. The epoxy resin can also be obtained in 55-gal drums.

Cost: The cost for the 4.84-gal kit (prices FOB, 1990) is listed below:

<u>Kit Quantity</u>	<u>Price per Kit, \$</u>
0-30	274.50
31-100	257.35
101-200	240.15