



REMR MATERIAL DATA SHEET CM-PC-1.20

CONCRETE PATCHING MATERIAL: MASTERFILL CJ

(Supersedes previously issued CM-PC-1.20)

1. NAME

Masterfill CJ

is designed for exposure to only mild chemicals such as salt solutions and roads oils. As a bonding agent, it should be used only for nonstructural applications.

2. MANUFACTURER

Master Builders, Inc.
23700 Chagrin Boulevard
Cleveland, OH 44122
Telephone: (216) 831-5500

5. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: All surfaces to be bonded should be sound and clean with no traces of contamination. While Masterfill CJ will bond to damp concrete, there should be no free water on the surfaces. Best results are obtained on dry concrete. For details of surface preparation, see Bulletin AE-100, "Surface Pretreatments for Adhesive Engineering Epoxy Resin Based Adhesives."

3. DESCRIPTION

Masterfill CJ is a two-component, modified epoxy-resin material designed especially for portland-cement concrete road surfacing. It is also an excellent economical binder for epoxy mortar for spall repairs, a binder for aggregate for nonskid surfaces and rumble strips, and an excellent inter-laminar membrane coating for asphalt concrete overlays on portland-cement concrete.

Mixing: Mix only the amount of material that can be used before expiration of the pot life. Measure the materials carefully, and add Part B to Part A. Mix thoroughly, using a mechanical mixer such as an electric drill-powered paint mixer. Be especially careful to scrape the sides and bottom of the container while mixing. Proper mixing will take from 3 to 5 min; the mixed material should contain no streaks or lumps. When making mortars, always mix the two components "A" and "B" before adding the dry sand or aggregate.

4. USES AND LIMITATIONS

Uses: Masterfill CJ can be used on concrete, steel, and wooden traffic surfaces to provide a durable, skid-resistant chip seal. Other uses include bonding precast curbing, filling/sealing wire slots in concrete and asphaltic pavement (inductive loop detectors, airport centerline cable). It can also be used as a filler for sawcut floor joints.

Limitations: It is recommended that Masterfill CJ not be applied when the ambient and/or surface temperature is below 40° F or to a wet or saturated surface dry substrate. This product

Applying as a troweling (patching) mortar: After the "A" and "B" components are thoroughly blended, the aggregate should be added gradually. Sand-to-binder ratios of 6:1 by weight (approximately 3.5:1 by volume) are normally employed to provide a dense, impervious mortar. The aggregate

should be graded to provide a low-void volume content (i.e., dense packing). Blend 2 bags of No. 8 or No. 12 mesh with 1 bag of 80 or 100 mesh. Use clean, dry, subangular (beach or river) sand. Prior to placing the mortar, brush or roller-coat the surface with a prime coat of straight Masterfill CJ without aggregate to insure a good bond.

Clean up: Mixed epoxy coating is much easier to clean up before it hardens. Solvents used for this purpose are methylethylketone (MEK - flammable) or perchloroethylene or methylene chloride (non-flammable). Two-component, airless spray equipment normally has a built-in solvent-purging system. Cured epoxy coatings may be removed from tools and equipment by using

heavy duty epoxy strippers, such as Methylene Chloride.

Handling and toxicity: For specific hazard warnings and first-aid instructions, READ THE CONTAINER WARNING LABELS CAREFULLY. Mixed components contain liquid epoxy resin and amines. May cause allergic skin and respiratory reaction. Harmful if swallowed. Do not get in eyes, on skin or on clothing. Use only with adequate ventilation. Wash thoroughly after handling. The use of barrier creams, such as Kerodex No. 71 or Indco Labs No. 211, 213 or 214 is recommended. Clean rubber gloves or disposable polyethylene gloves provide the best protection. Should skin contact occur, wash immediately with soap and water or Master Builders' Epocleanse 6001 hand cleaner.

6. MANUFACTURER'S TECHNICAL DATA

Form: A two-component, low viscosity liquid with controlled flow.

Color: Grey: Part A - grey, Part B - clear amber, Mixed - concrete grey. Black: Part A - clear, Part B - black, Mixed - black.

Mix ratio, A:B, by volume 1:1

Typical density (at 77° F), lb/gal	Typical viscosity (at 77° F), poise
Part A 9.31	Part A 34
Part B 7.46	Part B 28
Mixed 8.72	Mixed 32

Standard packaging: Masterfill CJ comes in 2, 10 and 100 gal units.

Shelf life: 18 months minimum in sealed containers at 90° F or below.

Typical Properties of Cured Material (Cured 7 days and tested at 77° F)

<u>Property</u>	<u>Test Method</u>	<u>Value</u>
Tensile strength, psi	ASTM D 638	850
Tensile elongation, %	ASTM D 638	85
Impact resistance, in./lb	Gardner-Direct -Reverse	>160 80
Tensile bond strength to PCC, psi	AASHTO T-237	310

(Continued)

<u>Property</u>	<u>Test Method</u>	<u>Value</u>		
Heat deflection temperature, °F	ASTM C 648	54		
Hardness, Shore D	ASTM D 2240	62		
Water absorption, 77° F	ASTM D 570			
		<u>Immersion Time, days</u>	<u>Weight Gain, %</u>	
		30	.85	
		90	1.25	
		150	1.35	
		240	1.40	
		300	1.40	
Typical Tensile Properties after Long Term Cure	ASTM D 638 (3-month cure at 77° F)			
		<u>Test Temperature</u>		
		<u>0° F</u>	<u>77° F</u>	<u>140° F</u>
Ultimate strength, psi		4,500	850	70
Tensile strength, %		7	85	10
Pot life and cure time, 77° F		Pot life, 1 qt	15 min	
		1 gal	12 min	
		Thin film, tack-free	4 hr	
		Thin film, hard dry	6 hr	
		Full cure	3 days	

7. CORPS OF ENGINEERS' EVALUATION

Technical data:

<u>Properties</u>	<u>Test Method</u>	<u>Results</u>
Compressive strength, psi	ASTM C 39	2,780
Modulus of elasticity, psi	ASTM C 469	1.88 × 10 ⁴
Flexural strength, psi	ASTM C 78	1,570
Bond to concrete, psi	ASTM C 882	750
Tensile strength, psi	ASTM C 190	270
Shrinkage, percent	GR-83-10* (unconfined condition ¹) (concrete patch) ²	0.002% 0.00%
Gel time, min	ASTM C 881	17

* Bureau of Reclamation Technical Report Standard.

¹ An exotherm of 30° F was reported in this specimen.

² An exotherm of 20° F was reported in this specimen.

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 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.

9. AVAILABILITY AND COSTS

Availability: Contact the sales department of Master Builders, Inc., for availability and source of material.

Cost: A 2-gal unit of Masterfill CJ costs \$78.