REMR Material Data Sheet CM-PC-1.33

CONCRETE PATCHING MATERIALS: CERAMITE CASTABLE 100

1. NAME

Ceramite Castable 100

2. MANUFACTURER

Elkem Chemical, Inc.
Parkway West Industrial Park
10 Parkway View Drive
Pittsburgh, PA 15205
Telephone: 412-788-6490

3. DESCRIPTION

Ceramite Castable 100 is a preblended concrete mixture that contains a selected grade of highly abrasion resistant aggregates, microsilica products, and portland cement to produce a high strength concrete that is highly abrasion resistant.

4. USES

The product is intended for use whenever high strength or high abrasion resistance is required. It is used for repairing portland cement concrete pavements, floors, and structural members and as an overlay for concrete when high strengths or high abrasion resistance is needed. The material has also been used for application under airfield barrier cables for abrasion resistance.

5. MANUFACTURER'S TECHNICAL DATA

The manufacturer states that the material has high resistance to abrasion and cavitation and has been found to be highly impermeable to chloride ion penetration. The compressive and flexural strengths of the material was reported to be >20,000 and <2,000 psi respectively.

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Mixing instructions: This material requires a longer mixing time than most cementitious materials. Sufficient time and accurate measurement of water are critical in the mixing of the material. For applications where impact resistance or flexural strength is critical, the manufacturer recommends the addition of 5 lb of 1/2- or 3/4-in. steel fibers per bag. The manufacturer's mixing instructions are given below:

a. This bag contains approximately 88 lb of preblended material. Use no more than 7 lb of water per bag. Use of more than the recommended water content will severely reduce the strength achieved.

b. Mix in a pan or mortar mixer. Add water to the dry powder and mix for 10 min. Do not be tempted to add additional water because of the initial dry appearance of the material.

c. If fibers are to be used, they should be added after the initial 10-min mixing period. Use up to 5 lb of 3/4- to 1/2-in. steel fibers per bag. Mix for an additional 5 min after adding fibers.

Placement and finishing: The material is placed and finished the same as

portland cement concrete. The use of concrete vibrators for consolidation is highly recommended. The finishing of the surface must begin shortly after placement. Curing should be started immediately after the material has been finished. Use a generous application of curing compound or cover with wet burlap and plastic sheeting.

7. CORPS OF ENGINEERS' EVALUATION

Properties	Test Method	Results
Compressive strength, psi	ASTM C 39	
2 days		11,430
7 days		19,100
28 days		23,700
Bond strength to concrete, psi	ASTM C 882	>3,400
Abrasion resistance, % loss by mass	CRD-C-63	
	24 hr	0.31
	48 hr	0.42
	72 hr	0.51

Field applications: Personnel from WES have overseen three applications of this material for inlays under airfield barrier cables. The abrasion resistance of these material has been superior to most polymer concretes and cementitious materials that were placed under barrier cables.

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 through Elkem Chemical, Inc.

Cost: Ceramite Castable 100 is packaged in 88-lb bags. The cost of the material is $70 per bag (prices FOB, 1990). Each bag will yield 0.5 cu ft of material when mixed with water.