



REMR Material Data Sheet CM-PC-2.6

FAST SETTING PATCHING MATERIALS: DELCRETE
ELASTOMERIC CONCRETE

1. NAME

Delcrete Elastomeric Concrete

2. MANUFACTURER

D. S. Brown Company
P.O. Box 158
North Baltimore, OH 45872
Telephone: 419-257-3561

3. DESCRIPTION

Delcrete elastomeric concrete is a polyurethane-based material compounded to develop high strength and to promote easy bonding to a variety of substrates.

4. USES

Delcrete elastomeric concrete is used for the rehabilitation of bridge expansion joints. Other applications include parking garage expansion joints; patching of pavements; and other applications where high impact resistance, abrasion resistance, and cavitation resistance is needed.

5. MANUFACTURER'S TECHNICAL DATA

Test	Test Method	Test Data
Elongation	Note 1	40
Hardness, durometer D	ASTM D 2240	51
Compression Properties		
Compressive stress, psi		
5% deflection	ASTM D 695 (Note 2)	875
10% deflection	ASTM D 695 (Note 2)	1,325
20% deflection	ASTM D 695 (Note 2)	4,700
Compression Set B, %		
After 22 hr @ 158°F	ASTM D 395	50
Compressive yield strength, psi (4" x 8" cylinder)		>10,000
Resilience, %		
5% deflection	Note 3	95
7.5% deflection	Note 3	94
Bayshore resilience, %	ASTM D 2632	11
Impact properties		
Ball drop, ft-lb		
@ 32°F	Note 4	>10 (no cracks)
@ -20°F	Note 4	>10 (no cracks)
Tensile properties		
Tensile strength, psi	Note 1	800

<u>Test</u>	<u>Test Method</u>	<u>Test Data</u>
After 14 days @ 158°F Izod, ft-lb/in. (unnotched)	Note 4 ASTM D 256	>10 (no cracks) 18
Adhesion properties Dry bond strength to concrete, pli	Note 5 (Dry)	495
Wet bond strength to concrete, pli	Note 5	325
Fluid immersion properties % weight change after: 70 hr @ 158°F in ASTM #3 oil	ASTM C 471	9
70 hr @ 158°F in H ₂ O	ASTM D 471	7
70 hr @ RT in unleaded gasoline	ASTM D 471	13
70 hr @ RT in jet fuel	ASTM D 471	10

Note 1. Test specimen 1-in. thickness, 2-in. cross section, 14-in. length, 5-in. benchmark. Test performed at Toledo University (Concrete Testing Laboratory).

Note 2. Test specimen is a cast 2-in. cube. (Machine crosshead speed is 0.05 in. per min.) Specimen is loaded until ultimate strength, if any, is reached. Compressive strength is maximum load carried by the specimen divided by original

cross-sectional area. (A compressometer is used to make the measurement.)

Note 3. Test specimen is a cast 2-in. cube. Specimen compressed to desired amount. (Machine crosshead speed is 0.05-in. per min.) Five minutes after load is removed, the specimen thickness is measured. Percent recovery is determined as follows.

$$\frac{\% \text{ Deflection} + \text{final thickness} - \text{initial thickness}}{\text{Deflection}}$$

Note 4. Test specimen is a cast disk 2.50 in. in diameter and 0.375 in. thick. Specimens are conditioned 4 hr at test temperatures. A 1-lb ball is dropped onto the center of the specimen through a plastic guiding tube from an initial height of 5 ft. The drop height is increased by 1/2-ft intervals until the specimen cracks. The drop is made within 10 sec after removal of the specimen from the exposure condition.) Average of four test specimens.

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

- Sand blast the entire opening.
- Apply primer on concrete and on steel, allowing at least 30 min before introducing DELCRETE™ material.
- Weigh up ingredients in respective containers and mix according to D. S. Brown specifications.
- Dump the mixture into the joint opening. It is normal to fill the area in a layering fashion with the

size of the opening determining the depth and length of each pour.

- Bring DELCRETE™ mixture to grade.
- The minimum installation temperature is 45°F.
- The joint opening must be dry at the time of installation.
- In special situations, external heat may be applied to speed curing time.
- Traffic can be accepted in as little as 1 hr after the final pour.
- A D. S. Brown representative or agent should be present during installation.

7. CORPS OF ENGINEERS' EVALUATION

<u>Properties</u>	<u>Test Method</u>	<u>Test Results</u>
Bond strength to concrete, psi	Flexural beam test method*	440
Abrasion resistance, % loss by mass	CRD-C-63 24 hr 48 hr 72 hr	0.0 0.0 0.0
Thermal compatibility with concrete		Passes

* A concrete beam was sawed in half and the surface of the cross-sectional area cleaned. The half beam was placed into the mold, and the mold was filled with the test material. After curing for 14 days, the beam was tested for flexural strength.

Delcrete (polyurethane with sand and glass fibers).

Mixture Proportions

<u>Material</u>	<u>Amount</u>
Component A	7 lb
Component B	7 lb
Sand (supplied)	1 bag
Glass fiber (supplied)	1 bag

Working time: about 6 min at 23°C

Cavitation Results

<u>Time hr</u>	<u>Specimen 1</u>	<u>Specimen 2</u>	<u>Avg</u>
	<u>Volume Loss Cubic Centimeters</u>	<u>Volume Loss Cubic Centimeters</u>	
0	0	0	
8	0.6	0.6	0.6
16	1.7	1.7	1.7
24	3.1	2.4	2.8
32	-	3.2	3.2
40	4.7	4.3	4.5
48	4.9	-	4.9
64	6.5	6.9	6.7
80	-	8.2	8.2
88	8.8		8.8

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

Contact the manufacturer for distribution.