



Expansion Joint Systems

Delcrete™ Elastomeric Concrete/Strip Seal Expansion Joint System

SECTION I – Description

The elastomeric concrete shall be Delcrete™ as supplied by: The D. S. Brown Company

300 East Cherry Street

North Baltimore, Ohio, USA 45872

Phone: (419) 257-3561 Fax: (419) 257-2200

No alternate system will be considered.

The elastomeric concrete shall be a polyurethane material compounded with an aggregate system to develop an ex-

cellent bond to a variety of surfaces, including concrete and steel. It has excellent flexibility characteristics, high load bearing capacity and is not prone to spalling or cracking.

The typical elastomeric concrete application is in bridge expansion joint work. Other applications are also possible including its use as a patching material.

SECTION II – Materials

Elastomeric concrete shall be a two-part polyurethane material with an aggregate system.

SECTION III – Characteristics – Properties

Elastomeric concrete: This free-flowing, two-part polyurethane material shall be mixed and poured easily at the job site. Mixed material shall have a pot life of approximately five minutes. Material shall cure exothermally requiring no application of external heat (at ambient temperatures of 45° F [7°C] or greater).

The elastomeric concrete shall have the following physical properties:

Physical and Performance Properties – Binder and Aggregate

Test	Test Method	Specification
Original Properties (after conditioning at 100°F [37°C] for 7 days)	Tensile Strength, psi (MPa) Elongation, % Hardness, Durometer D	Note 1 Note 1 ASTM D2240 600 (4.14) Min. 25 Min. 50 Shore D Max.
Compression Properties	Compressive Stress, psi (Mpa) 5% Deflection	ASTM D695 Note 2 800 (5.52) Min.
	Resilience, % 5% Deflection	Note 3 70 Min.
Impact Properties	Ball Drop, ft.-lb. (Joule) @ -20°F (-29°C)	Note 4 >10 (13.56) (No cracks)
Adhesion Properties	Dry Bond Strength to Concrete, pli (KN/M)	Note 5 (Dry) 350 (61.30) Min.
	Wet Bond Strength to Concrete, pli (KN/M)	Note 5 250 (43.78) Min.

Physical and Performance Properties – Binder Only

Test	Test Method	Specification
Original Properties (after conditioning at 100°F [37°C] for 7 days)	Tensile Strength, psi (MPa) Tensile Stress, psi (MPa) Elongation, % Hardness, Durometer D	ASTM D638 ASTM D638 ASTM D638 ASTM D2240 1,500 (10.34) Min. 500 (3.45) Min. 200 Min. 90 ±3 A
Tensile Properties, After Oven Aging (7 days @ 158°F [70°C])	Tensile Strength, psi (MPa) Tensile Stress, psi (MPa) Elongation, % Hardness, Durometer	ASTM D573 (D638) ASTM D573 (D638) ASTM D573 (D638) ASTM D573 (D2240) 1,500 (10.34) Min. 500 (3.45) Min. 200 Min. 90 ±3 A

Bridge the World with Leading Infrastructure Solutions

300 East Cherry Street • North Baltimore, OH 45872 | Telephone: 419.257.3561 • Fax: 419.257.2200 | www.dsbrown.com

Delcrete™ Elastomeric Concrete/Strip Seal Expansion Joint System**Expansion Joint Systems**

2 of 2

The elastomeric concrete utilized must set up and allow traffic no later than two (2) hours after the final pour.

Note 1. Test specimens are six-inch (15.24 cm) dumbbells (with one-inch [2.54 cm] bench marks) cut from cast film approximately 80 mils (.204 cm) thick.

Note 2. Test specimen is a cast two-inch (5.08-cm) cube. (Machine crosshead speed is 0.05 inch [.127 cm] per minute.) Compressive strength is maximum load carried by the specimen divided by original cross-section area. (A compressometer is used to make the measurement.)

Note 3. Test specimen is a cast two-inch (5.08-cm) cube. Specimen compressed to desired amount. (Machine cross-head speed is 0.05 inch [.127 cm] per minute.)

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 inches (6.35 cm) in diameter and 0.375 inches (.953 cm) thick. Specimens are conditioned four hours at test temperatures. A one-pound (454 g) steel ball is dropped onto the center of the specimen through a plastic guiding tube from an initial height of five feet (1.52 M). The drop height is increased by one-half foot (.152 M) intervals until specimen cracks. (Drop is made within ten seconds after removal of specimen from the exposure condition.) Average of four test specimens.

Note 5. Delcrete™ is cast against a mortar-briquette half (briquette conforms to ASTM C190). Briquette is sawed in half so that cut surface area equals approximately one square inch (6.45 cm²). Surface is sandblasted (36 mesh).

Briquette is placed in mold and Delcrete™ is cast against it. Specimen is submerged in water (seven days @ RT). Using the Riehle Briquette Tester, specimen failure is considered to occur at either the bond interface or within one of the two materials.

SECTION IV – Experience Requirement

The manufacturer shall have a minimum of 15 successful installations in the previous 3-year period.

SECTION V – Methods of Measurement and Payment

The dimensions of the blockout as detailed in the contract plans will determine the amount of elastomeric concrete to be used.

SECTION VI – Construction Methods

The contractor shall follow the manufacturer's installation. An experienced technical representative of the material supplier shall be present during all phases of material installation. The representative shall be competent in all respects with the material and all equipment to install properly.

The equipment used for the mixing and pouring operation must be supplied by the manufacturer or approved by the manufacturer.

Equipment to be used is a Hobart MA-200 mixer with 20-quart plastic bowls.

The blockout preparation and mixing/pouring of the elastomeric concrete shall be completed in accordance with the manufacturer's written procedures.