Date: February 6, 2012
First Use Date: June 22, 2012

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

SUPPLEMENTAL SPECIFICATION

Section 886—Epoxy Resin Adhesives

Delete Section 886 and substitute the following:

886.1 General Description

This section includes the requirements for the most common epoxy adhesives used in highway construction or maintenance.

886.1.01 Related References

A. Standard Specifications

General Provisions 101 through 150.

B. Referenced Documents

AASHTO T 237

ASTM 2240

Federal Hazardous Products Labeling Act

GDT 58

QPL 15

886.2 Materials

886.2.01 Epoxy Resin Adhesives

A. Requirements

1. Use the types of epoxy adhesives below:
   a. Type I-R: Rapid-setting marker adhesive for bonding raised pavement markers to pavement.
   b. Type I-S: Standard setting marker adhesive for bonding raised pavement markers to pavement.
   c. Type II: Epoxy adhesive for bonding plastic concrete to hardened concrete.
   d. Type III: Epoxy adhesive for bonding hardened concrete to hardened concrete, or for bonding miscellaneous materials such as metals.
   e. Type IV: Epoxy adhesive for creating an epoxy mortar for use with clean concrete or mortar sand.
   f. Type V: Epoxy adhesive for repairing cracks in concrete by intrusion grouting.

g. Type VI: Epoxy adhesive for a complete application or as a component in the application of a skid resistant or protective coating on hardened Portland cement concrete or asphaltic concrete.

h. Type VII: Discontinued.

i. Type VIII: Epoxy adhesive used for anchors and dowel bar implants. Do not use in sustained tension load applications. Either mix this epoxy by machine to the proper ratio or package it in a two-component cartridge with a mixing nozzle that thoroughly mixes the two components as they are dispensed. Use a nozzle at least 8 in (200 mm) long.

2. Furnish the epoxy adhesive as two separate components.

3. Viscosity

   Ensure that the viscosities of the separate components are similar and conducive to easy blending of the epoxy adhesive system.

   a. Submit the viscosity for the epoxy adhesive system to the Engineer.

   b. Ensure that the viscosity of the mixed system is compatible with the intended use of the system.

4. Labeling

   Clearly label each container of the separate components of an epoxy adhesive system with the following information:

   - Specification number and type
   - Component designation (A or B)
   - Manufacturer's batch number—a batch is a single charge of all components in a mixing chamber
   - Expiration date (shelf life for separate components in original containers)
   - Mixing ratio and directions (by volume or weight as designated by the manufacturer)
   - Potential hazards and precautions according to the Federal Hazardous Products Labeling Act

5. Stencil the component designation on the top of each container.

6. Physical Requirements

   Ensure that the mixed epoxy adhesive system meets the applicable requirements of Table 1.

B. Fabrication

General Provisions 101 through 150.

C. Acceptance

Each epoxy adhesive system shall meet the requirements of this Section.

If the Department qualifies or disqualifies a system for one of the types specified, it will not affect the qualification or disqualification of any other type.

The Department will reject any epoxy adhesive system that meets all the requirements of this Section, but fails in actual use. For a list of sources, see QPL 15.

D. Materials Warranty

General Provisions 101 through 150.

Table 1
Mixed Epoxy Adhesive Systems Requirements

Type Designation										
Property	**I-R**	**I-S**	**II**	**III**	**IV**	**V**	**VI**	**VII**	**VIII**	**Test Method**

Pot Life at 77 °F (25 °C) (minutes)	6-11	8-13	30	10-45	30-60	10-45	30-60	—	3-10	GDT 58
Elongation at 77 °F (25 °C) (percent)	—	—	—	—	30**	—	30**	—	5% Max.	GDT 58
Bond Strength, psi (MPa) at 1 hr and 77 °F (25 °C) at 3 hr and 77 °F (25 °C) at 24 hr and 77 °F (25 °C)	180 (1.2) — 400 (2.8)	— 180 (1.2) 400 (2.8)	— — 400 (2.8)	— — 400 (2.8)	— — 250 (1.7)	— — 400 (2.8)	— — 250 (1.7)	— — —	— 250 (1.7) 400 (2.8)	GDT 58
Shore D Hardness at 77 °F (25 °C)	—	—	—	—	75 Max.	—	35-65	—	—	ASTM: 2240
SAG Test	—	—	—	—	—	—	—	—	No Sag	AASHTO: T 237
Wet Bond Test ,psi (MPa)	—	—	400 (2.8)	—	—	—	—	—	—	AASHTO: T 237 Section 31
Shelf Life*** (months)	6	6	6	24	12	24	6	—	6	

Note: * Values are minimums except where a range is shown, or otherwise noted.

** Epoxy adhesive system only. *** For separate components in original containers.