

**Product
Bulletin**

AL800

RAISED PAVEMENT HIGHWAY MARKER EPOXY ADHESIVE RAISED POST AND ROAD MARKER EPOXY

GENERAL DESCRIPTION

AL800 is an Epoxy adhesive for raised highway markers requiring the optimum bond strength properties.

AL800 is a two part, solvent less, 100% reactive rapid cure epoxy adhesive. The AL800 has been designed and engineered to meet the following specifications:

- The American Association of State Highway and Transportation officials' (AASHTO) specification M-238-82
- State of California Department of Transportation, specification 8040-51B-09
- State of Texas Department of Highways and Public Transportation, specific D-9-6100 (1, 1M, 11, 111).
- State of Hawaii Highways, specification 712.41 Section B
- State of Oregon Highways, specification 44.2.02 B4

AL800 is a marked improvement over present adhesives in fast setting wet strength, cold temperature cure properties, bond strength, and gel time control.

Wet strength tests using AL800 in accordance with AASHTO T-237-32.1 exhibit a three-fold improvement over typical highway marker adhesives.

AL800 reduces coning times to as low as 15 minutes.

SPECIFICATIONS
HANDLING CHARACTERISTICS

Catalyst Number	AL800
Mix Ratio	Catalyst to Resin: Weight: 1:1 Volume: 1:1
Gel Time	12 min.
Color	Resin Part A: White Catalyst Part B: Black Mix: Grey
Brookfield Viscosity @ 25°C, poise:	Resin: 1000-3000 Hardener: 1,000-3,000
Shear Ratio, minimum @25°C	2
Density gm/cc:	Resin: 1.37 Hardener: 1.43
Storage Stability: Resin and hardener will retain more than 85% of the viscosity and shear ratio for 3 weeks in a closed container at 49°C	
Skinning (original container)	Resin: None Hardener: None

PHYSICAL CHARACTERISTICS

Resin, pounds / gallon:	11.5-11.8
Catalyst, pounds / gallon:	11.5-12.1
Tensile Strength, psi:	7,300
Compressive Strength, psi:	16,000
Elongation, %:	3.4
Flexural Strength, psi:	15,500
Izod Impact, ft · lb / in:	0.35
Heat Distortion, °C:	55

Moisture Absorption, % weight increase, ¼ in x 2 in disc immersed in distilled water @ 25°C:

1 day –	1.0
2 days –	1.12
3 days –	1.28
4 days –	1.38
5 days –	1.90
6 days –	2.0
7 days –	2.19
14 days –	2.68
21 days –	3.05
28 days –	3.38



CHARACTERISTICS OF COMBINED COMPONENTS:

ADVANTAGES OF AL 800

- Fast Set time in Traffic Marker
- Equal Volume Combining Ratio
- High Impact Strength
- Moderate Pot Life
- Thixotropic

CURED STATE PROPERTIES:

Tensile Shear Strength, psi.....1860
Steel to Steel

Impact Strength, Ft/Lbs..... >7.5
1 Pound Falling Ball

Weight Gain %
After 24 hrs. Immersion in water.....0.35

Bonded Specimens	Ambient & Substrate Temp.	Cure time	Tensile Bond Strength	Type Failure
Steel to concrete	16°C	4 hours	290 psi	Cohesive
Steel to concrete	25°C	2 hours	380 psi	Cohesive
Steel to concrete	35°C	1 hour	250 psi	Cohesive
Steel to concrete	46°C	0.5 hour	180 psi	Cohesive

The combines components when mixed in a ratio 1:1 by volume or weight will develop the following properties:

Gel time:8-13 min
Bond strength to concrete, Maximum time to reach more than 300 psi at 25°C:3 hours
Minimum slant shear strength, 25 hours at 25°C:2400 psi
Minimum slant shear strength, 24 hours at 25°C, plus water soak:1500 psi
Minimum tensile Adhesion and cohesion, to ceramic marker bottom:500 psi

Color mixed components approximately that of color No. 26152 of federal standard No. 595.

DIRECTIONS FOR USE:

1. The resin and the hardener should be stored for a minimum of 24 hours prior to use at temperature of 25°C or higher.
2. Just before use, blend together equal volumes or weights of resin and hardener portions until uniform color is combined. Apply the mix to clean substrate within 15 minutes after mixing.
3. When an automatic proportioning and mixing machine is used, the temperature of the components shall be such that after proper mixing there shall be no excess flow of adhesives from under the marker.
4. Machine mixer and applicator must be capable of accurately and uniformly proportioning hardener to resin a volume ratio of 1:1 within +5% by volume of each component.
5. Mixing chamber must produce the mixed adhesive with a uniform gray color with no visible evidence of streaks of either black or white on the surface within the mixed adhesive.
6. The ambient temperature during application shall be at least 10°C and preferably higher than 16°C. This adhesive hardens relatively slow at 10°C but the hardening rate rapidly accelerates as temperature increases.

The information given and the recommendations made herein are based on our research and are believed to be accurate but no guarantee of their accuracy is made. In every case we urge and recommend that purchasers before using any product in full scale production make their own tests to determine to their own satisfaction whether the product is of acceptable quality and is suitable for their particular purposes under their own operation conditions. No representative of ours has any authority to waive or change the foregoing provisions but, subject to such provisions, our engineers are available to assist purchasers in adapting our products to their needs and to the circumstances prevailing in their business. Nothing contained herein shall be construed to imply the nonexistence of any relevant patents or to constitute a permission, inducement or recommendation to practice any invention governed by any patent, without the authority from the owner of this patent. We also expect purchasers to use our products in accordance with the guiding principles of the Chemical Manufacturers Association's Responsible Care® program.



TEMPERATURE LIMITATIONS:

The storage of epoxy components is important. When the temperature of either component is under 15.6°C, the viscosity of the products will thicken substantially. The reaction of the cure is slowed substantially. At high temperatures in excess of 32.2°C, the product is easily mixed but the working time is reduced with resulting faster set on the road.

The following guide is based on a temperature ratio of both road surface and epoxy adhesive. Should the road surface be at a lower temperature than that of the adhesive then adjustment for set time must be made.

<u>Temp. °C</u>	<u>Set time, hrs</u>
34.4	¼ - ½
37.8	½ - ¾
32.2	1 hr - 1 ½ hrs
26.7	1 ½ - 2 ¼ hrs
21.1	3-4 hrs
15.6	4-6 hrs
10.0	6-7 hrs

Packing

2 Gallon unit (1 gal. R-1 gal. H)	27 lbs.
10 Gallon unit (5 gal. R-5 gal. H)	127 lbs.

NOTE: Do not apply when the road surface or air temperature is below 10°C. Only apply when the road surface and air temperature is above 10°C, and is anticipated that it will remain above 10°C for the following 24 hours after application. When applying at cooler temperatures, precondition material to approximately 25°C prior.

SURFACE PREPARATIONS:

AL800 can be applied over any surface that is clean, dry and structurally sound. Remove all wax, dirt, dust, oils and any foreign material that will prevent the proper bond of the adhesive to the surface. We recommend that the surfaces be lightly sandblasted before application of the epoxy adhesive. Barriers should be erected to protect the marker during the set of adhesive.

HANDLING PRECAUTIONS FOR EPOXY MATERIALS:

All epoxy resins and most curing agents are known sources of skin irritation. However, in handling all Epoxy systems, one simple rule should be followed: AVOID CONTACT WITH SKIN. This includes avoiding exposure to and breathing of hot vapors. By avoiding skin contact from the very beginning of work, no difficulty need be encountered and skin irritation will not become a problem.

1. Wear rubber or vinyl gloves when handling the uncured materials.
2. Work under conditions of good ventilation. When possible, exhaust the fumes into the outside air.
3. Change clothing contaminated with the epoxy and launder before rewiring.
4. Keep working area clean. Any epoxy that is spilled should be wiped up immediately with disposable paper towels.
5. If wearing contaminated gloves, do not handle items touched by others, such as door knobs, light fixtures, etc.
6. In the event of skin contact, wash the epoxy off with soap and water. Never wash with a solvent. Solvents spread the resin over the skin rather than removing it and dry out the natural oils of skin. Dermatitis from solvents is, in fact, one of the main causes of trouble when handling epoxy systems.

NOTE: If the material is splashed in the eyes, irrigate with water for 15 minutes and get medical attention.

Resistance to the sensitizing action of ingredients in epoxy resin formulations will vary from individual

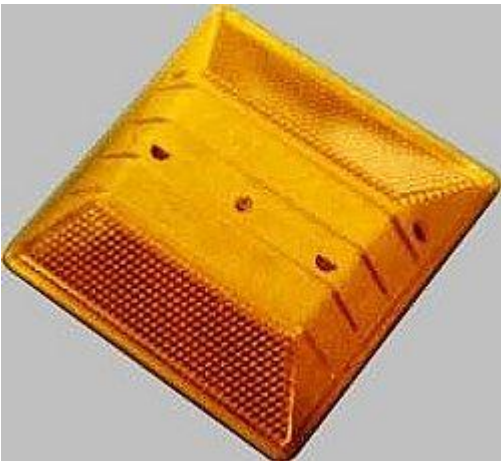
APPLICATION:

AL800 was designed for the placement of the raised traffic marker adhesive and for bonding of ceramic or plastic traffic markers to roadway and bridge surfaces. AL800 is designed to be mixed and dispensed by hand or by automatic metering, mixing, and application equipment.

to individual but, with few exceptions, everyone does possess a satisfactory initial resistance. The resistance, however, is diminished with each contact until after 200 contacts, it is eventually destroyed. Thereafter, the worker is sensitized and may develop a rash or, more rarely, an asthma-like condition after

each new skin contact and, in hyper sensitive individuals, after exposure to low concentrations of the fumes which otherwise would have no effect. The importance of preserving initial resistance is readily apparent.

EPOXY WITH RAISED PAVEMENT TRAFFIC MARKERS



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