Description
This information folder contains pavement surface preparation and application procedures for 3M™ Markers Series 290. For situations not specifically covered in this folder, it is the responsibility of the installer to contact the appropriate 3M sales representative or 3M technical service representative at 1-800-553-1380 for guidance. Instructions contained in this folder must be followed for proper application and performance.

Application Guidelines
Series 290 markers are designed for application to properly prepared asphalt or Portland cement concrete surfaces using recommended bitumen or two-part epoxy adhesives. Adhesives other than those recommended must be evaluated by the user to determine suitability.
• Do Not apply markers in the following situations:
  1. On longitudinal or transverse seams or joints in the pavement.
  2. Over existing pavement markings such as paint, thermoplastic or preformed tapes.
  3. During rainfall or within 24 hours after rainfall.
• Follow the recommendations of the adhesive manufacturer for application temperatures and ambient weather requirements.
• All Applications must be made on a dry surface that has been swept clean or blown with high-pressure air to remove dirt and dust.

Surface Types
1. New Asphalt Surfaces
   Review the manufacturer’s recommendations for applying bitumen adhesives to asphalt surfaces to determine required waiting periods between paving operations and marker installation. The use of epoxy adhesives on asphalt surfaces open to traffic less than six months should be tested and approved by the user for adhesion performance before large-scale applications are made.

2. Older Asphalt Surfaces
   Epoxy and bitumen adhesives can be used on asphalt surfaces that have been open to traffic for at least six months.

3. New Portland Cement Concrete Surfaces
   Concrete surfaces open to traffic for less than 90 days must have the curing compound removed prior to application of bitumen or epoxy. Curing compound should be removed by sandblasting or other methods such as hydro-blasting, shot blasting or grinding.

4. Old Portland Cement Concrete Surfaces
   Markers can be applied directly to concrete surfaces that have been open to traffic for at least 90 days.

5. Chip, Slurry or Fog Sealed Surfaces
   Allow adequate compaction and curing time before application of markers. Chip seal surfaces should be swept of excess aggregate and open to traffic for 30 days prior to installation of markers. Follow the recommendations of the adhesive manufacturer for these surfaces. On coarse-textured chip seal pavements, epoxy adhesive may need to be placed in two steps to allow for proper leveling prior to marker application.
Epoxy Requirements

Standard Set Epoxy Adhesive:
A properly mixed epoxy adhesive should display the following characteristics of the combined components:

**Gel Time:** 7 to 13 minutes

**Bond Strength to Concrete**
Time to reach not less than 200 psi at 77°F (14 kgs/cm² at 25°C)

<table>
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<tr>
<th>Time (minutes)</th>
<th>Bond Strength (psi)</th>
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<tr>
<td>180</td>
<td>200 at 77°F</td>
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**Shear Strength**
24 hrs. @ 77°F (25°C) 2200 psi (154 kgs/cm²)
24 hrs. @ 77°F (25°C) plus water soak 1500 psi (105 kgs/cm²)

Sufficient pressure and adhesive must be used to assure a visible bead of adhesive around the perimeter of the marker. Excessive epoxy in front of the reflector surface should be scraped aside. Follow the manufacturer’s recommendations for application.

**Recommended Epoxy Adhesive**
E-Bond Epoxies, Inc.
501 NE 33rd Street
Ft. Lauderdale, FL 33307
(954) 566-6555
Part# 1240/1241 Epoxy Adhesive

Fast Set Epoxy Adhesives: Series 290 raised pavement markers are also compatible with fast-set epoxy systems. Follow the manufacturer’s recommendations for application.

**Recommended Fast Set Epoxy Adhesive**
Crafco, Inc.
420 Roosevelt Avenue
Chandler, AZ 85226
(800) 528-8242
Part # 34269 Bitumen Adhesive

Bitumen Adhesive Requirements
Bitumen adhesive is a homogeneous mixture of asphalt binder and mineral filler. It is a single-part system designed to be melted, then applied by pouring or pumping. Bitumen adhesive sets up on cooling and is ready for traffic within five minutes. Follow the manufacturer’s recommendations for application. For Series 290 markers typical adhesive usage is one pound per three markers applied.

**Recommended Bitumen Adhesive**
Crafco, Inc.
420 Roosevelt Avenue
Chandler, AZ 85226
(800) 528-8242
Part # 34269 Bitumen Adhesive

Other Adhesives:
Application of Series 290 markers is only recommended with the use of adhesives meeting the requirements listed in this information folder. It is expected that other epoxy or bitumen adhesives will be suitable but markers should be tested with these adhesives to determine suitability before using.

Health and Safety Information
Read all health hazard, precautionary and first-aid statements found in the Material Safety Data Sheet (MSDS) and/or product label of chemicals prior to handling or use. Also refer to the MSDS for information about the volatile organic compound (VOC) content of chemical products. Consult local regulations and authorities for possible restrictions on product VOC content and/or VOC emission.

**Literature Reference:**
PB 290 3M™ Raised Pavement Marker 290


3M assumes no responsibility for any injury, loss or damage arising out of the use of a product that is not of our manufacture. Where reference is made in literature to a commercially available product, made by another manufacturer, it shall be the user’s responsibility to ascertain the precautionary measures for its use outlined by the manufacturer.

Important Notice
All statements, technical information and recommendations contained herein are based on tests we believe to be reliable, but the accuracy or completeness thereof is not guaranteed, and the following is made in lieu of all warranties, or conditions express or implied. Seller’s and manufacturer’s only obligation shall be to replace such quantity of the product proved to be defective. Neither seller nor manufacturer shall be liable for any injury, loss or damage, direct, special or consequential, arising out of the use of or the inability to use the product. Before using, user shall determine the suitability of the product for his/her intended use, and user assumes all risk and liability whatsoever in connection therewith. Statements or recommendations not contained herein shall have no force or effect unless in an agreement signed by officers of seller and manufacturer.

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