

## **Miratak® Membrane Installation Guide For Bridge Decks**

Miratak® is manufactured in 36-inch wide rolls to minimize joints and to provide full coverage installation across the width of a bridge deck.

### **What it does**

- Prevents surface moisture intrusion
- Prevents intrusion of de-icing salts into reinforced concrete surface
- Delays reflective cracking
- Stretches to span cracks without breaking
- Sticks readily to concrete, asphalt, or wooden decks
- Easy and inexpensive to install

### **Equipment**

No special equipment is required for unrolling and placing Miratak®. Utility knives and pneumatic rolling equipment are all that are required. For primer application brushes, rollers, or spray equipment will be necessary.

### **Surface Preparation**

**Asphalt Surfaces:** Before installing Miratak®, the bridge deck surface must be sufficiently dry, free of dust, and excess crack filling material. Cracks should be filled with a suitable crack filler. Severely spalled or otherwise distressed areas must be repaired in accordance with accepted procedures. For optimum adhesion, a reasonably smooth deck surface is important. On a milled or highly textured surface a leveling course can solve the problem. Application of primer is required on the deck before applying Miratak®. Any suitable priming material composed of asphalt and rapid drying solvent (Table 1) may be used. As soon as it cures (primer does not stick to hand) apply Miratak®. Generally bridge decks tend to generate moisture during heating and cooling cycles, a primer is important prior to placing membrane.

**Portland Concrete Bridges:** The bridge deck must be smooth and the surface must be sufficiently dry, free of dust, and excess crack filling material. It is recommended that a leveling course be use, if this is not practical surface should be treated with a concrete primer to enhance adhesion. Primer is recommended to meet ASTM D 41 (Ref 1). Follow the recommendations of the primer manufacture.

**Timber Bridges:** Special procedure is required to install these types of membranes over timber decks. Timbers treated with penta and creosote are known to have a chemical reaction when in direct contact with the mastic used in these types of membranes. The treated timber should have 4 to 6 weeks time to “air-out” or reach equilibrium before the installation of Miratak®. To eliminate direct contact, apply a layer of hot mix asphalt as a leveling course over the deck. Then install Miratak® as per the suggested procedure. Over the installed membrane place the required hot mix asphalt overlay. Basically Miratak® is sandwiched between two layers of asphalt.

**Temperature:** The surface temperature should be 45° F and above when installing Miratak®. Storage temperature should not exceed 125° F.

**Storage and Handling:** Use care in handling and storing Miratak® rolls to limit potential damage. Avoid getting moisture to the rolls as this can moist the release paper and may create problems in removing release paper.

## **Installation**

Directional alignment of the Miratak<sup>®</sup> is important. Start at one curb and work toward center of the bridge. On a super-elevated deck start from lower curve so that the membrane overlaps are in the direction of water run-off, similar to roofing shingle installation. Position the roll on the curb. Unroll 15 to 20 feet along the curb, sufficient to establish direction, with release paper still attached.

Slit the release paper with utility knife, be careful not to cut into the mastic. Peel off paper from the mastic and pull towards you so that you are installing the unrolled section of exposed mastic side of the membrane. Re-roll the initial 15 to 20 foot strip initially placed for alignment.

Follow the same release procedure in the opposite direction and complete the installation. Overlap adjacent panels and end of roll four inches. Stagger the end of roll joints so they are not in a straight line. Install joints in the direction of traffic.

Trowel a bead of rubberized mastic or other suitable sealing compound along the edge of the membrane at the curb. Mastic is also recommended in areas where adjacent panels, end of roll overlaps, and where construction techniques indicate additional sealing as necessary. This procedure will help ensure a watertight seam in all areas. Mastics, ASTM D-4586 (Ref 2) are available from local roofing suppliers.

Roll the deck with pneumatic roller to insure good contact and adhesion to the pavement surface. Bubbles and wrinkles should be slit and smoothed.

## **Trafficking**

Limited traffic will not damage Miratak<sup>®</sup> membrane and can be opened to construction traffic. However, if local conditions require that traffic should be permitted and in the judgment of the engineer that safety is not an issue, the fabric can be opened to traffic for a maximum of 2 weeks. Signs should warn motorists that the driving surface might be slippery when wet and speed should be significantly reduced.

## **Application of Overlay**

**Tack coat:** A standard pre-paving tack coat is applied over the Miratak<sup>®</sup> and rest of the surface before placing hot mix asphalt layer. A standard rate of 0.03-0.05 gallons per square yard is sufficient.

**Minimum overlay Thickness:** The hot mix asphalt overlay should be placed according to the project specifications. However, a minimum compacted thickness is recommended over the membrane.

## **Storage & Packaging:**

Miratak<sup>®</sup> is packaged in boxes that provide protection from ultra- violet light during storage. However it is recommended that the product be stored in a cool, dry place away from direct sunlight. Storing membrane in the sun on a hot day may make the membrane very stick and hard to work with. On cooler days one may want to keep membrane in the sun to enhance the tackiness. Long-term storage should be indoors at temperatures <115°.

## **Primers and Mastics:**

Primers and Mastic are suggested in tables from current manufactures of product. Products are known to be compatible with Miratak<sup>®</sup>. The manufacture of primers and mastics should be consulted for spread rates, drying times and any changes to products. Check with your Mirafi Construction Products for additional alternative products and information.

TABLE 1: Asphalt Emulsion Primers for Asphalt Surfaces

Emulsions	Cationic	An/Nonionic
	CRS-2	RS-2
	CRS 1h	RS-1
		SS-1
		SS-1h

If asphalt emulsion is used, suitable cure-time must be followed to allow the water to break from the emulsion. It must be understood that the residual amount of asphalt required should not be reduced. Additional recommendations are available from our pavement technical staff for use with emulsions

**Reference 1: Primers for Concrete Pavements**

HE 104 Asphalt Primer, **W. W. Henry Company** 2911 Slauson Ave. Huntington Park, CA 90255  
(213) 583-5000 (800) 486 1278, Web Page: [www.henry.com](http://www.henry.com)

M 400 RubrPrime, **Fields Corporation** 2240 Taylor Way Tacoma, WA 98421  
(206) 627-4098, (800) 627-4098, Web Page: [www.fieldscorp.com](http://www.fieldscorp.com)

CCW-702 Primer, **Carlisle Coatings & Waterproofing 900** Hensley Lane, Wylie, Texas 75098  
(800) 527-7092, Web Page: [www.carlisle-ccw.com](http://www.carlisle-ccw.com)

108 Asphalt Primer, **Karnak Roofing Products** 330 Central Avenue, Clark, NJ 07066  
(800) 526-4236, Web Page: [www.krnakecorp.com](http://www.krnakecorp.com)

P-1 / P-2, **Vance Brothers, Inc.** 5201 Brighton Kansas City, MO 64180  
(800) 526-4236, Web Page: [www.vancebros.com](http://www.vancebros.com)

**Reference 2: Mastics for Sealing Edges and Overlaps**

CCW-704 Mastic **Carlisle Coatings & Waterproofing 900** Hensley Lane, Wylie, Texas 75098  
(800) 527-7092. Web Page: [www.carlisle-ccw.com](http://www.carlisle-ccw.com)

229 AR Electrometric, Karnak Corporation 330 Central Avenue Clark, NJ 07066  
(800) 526-4236, Web Page: [www.krnakecorp.com](http://www.krnakecorp.com)

M 300 RubrMastic, **Fields Corporation** 2240 Taylor Way Tacoma, WA 98421  
(206) 627-4098, (800) 627-4098, Web Page: [www.fieldscorp.com](http://www.fieldscorp.com)

HE 209 Elastomastic, **W. W. Henry Company** 2911 Slauson Ave. Huntington Park, CA 90255  
(213) 583-5000 (800) 486 1278, Web Page: [www.henry.com](http://www.henry.com)


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