



## APPLICATION INSTRUCTIONS

### PAVEPREP & PAVEPREP SA

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#### READ BEFORE USING THIS PRODUCT

**GENERAL:** PavePrep and PavePrep SA are heavy duty, high strength pavement repair geo-composite membranes used to reinforce and waterproof pavement cracks and joints to reduce reflective cracking of asphalt concrete overlays. They are also used as heavy duty waterproofing membranes for bridge decks. These products are composed of a flexible, high density asphalt mastic between two layers of heat resistant polyester fabric. PavePrep SA additionally has a polymer modified self adhesive layer which bonds the membrane to the pavement. To use, these products are unrolled and bonded to pavement surfaces and then pressure rolled to secure in place. The asphalt concrete overlay is then constructed.

**PRODUCT SELECTION:** PavePrep and PavePrep SA are used in the same applications, with the difference being that PavePrep SA does not require bonding adhesive application (in most applications) prior to installation. Products are supplied in rolls in several widths ranging from 12" (0.3m) to 48" (1.2m). Following are guidelines for width selection:

<u>WIDTH</u>	<u>TYPICAL USES</u>
12" (0.3m)	Longitudinal PCC joints that are not spalled or deteriorated, or edge reinforcing strips for waterproofing.
18" (0.46m), 20" (0.5m) & 24" (0.6m)	Transverse and longitudinal joints and cracks in both asphalt and portland cement concrete surfaces, shoulder or edge joints between asphalt concrete and PCC pavements, longitudinal cold joints in asphalt concrete paving, or other repaired areas. Maximum crack, joint or repaired area width should not exceed 1" (25mm) for 18" (0.46m) PavePrep, 3" (75mm) for 20" (0.5m) PavePrep, and 6" (150mm) for 24" (0.6m) PavePrep.
36" (0.9m), 40" (1.0m) & 48" (1.2m)	Distressed, fatigued cracked area, previously repaired areas, utility cuts up to 30" (0.76m) wide (for the 48" (1.2m) material). Also used for bridge deck waterproofing

In addition to the above requirements, the selected width shall allow the material to extend approximately 9" (0.23m) minimum beyond the area to be repaired. The only exception is for longitudinal PCC joints that do not exhibit signs of spalling or edge deterioration as stated above, where 6" (15cm) is acceptable. Note that wider PavePrep provides increased reflective crack reduction.

**SURFACE PREPARATION PROCEDURES:** For best performance, these products must only be applied to surfaces that are clean, thoroughly dry with no lingering moisture at cracks, free of contaminants, stable, relatively smooth and which have had defects repaired or treated. Surfaces are to be structurally sound and stable and not experience excessive differential vertical movement from loadings. PavePrep will not reduce reflective cracking in pavements with high differential vertical movement at cracks or joints. Obvious areas of excessive deflection such as potholes, depressed alligator cracked areas, faulted joints, subsided slabs, should be repaired and stabilized to provide a stable surface prior to use of these products. The surface should be sufficiently level or plane without protrusions or depressions, so that the membrane will be in complete contact with the surface.

**Cleaning:** The surface should be swept or blown with clean moisture and oil free compressed air to remove dirt, dust, vegetation or other miscellaneous debris. Areas that are not adequately cleaned with sweeping or air may require scraping with shovels or other hand tools, followed by compressed air blowing. Surfaces with bonded accumulations may require more intensive cleaning procedures such as high pressure water blasting, wire brushing or abrasive cleaning. The cleaning procedure is to result in surfaces which are dry and free from dust, dirt or other contaminants. Additional cleaning procedures for several surfaces follow:

**Portland Cement Concrete Surfaces** – New Portland cement concrete pavements usually are treated with curing agents and may be contaminated with form release oils. Curing compounds used should not contain silicone, oil or wax bases, as membrane adhesion may be affected. Form release agents should be a self-dissipating type. New PCC must be cured for at least 7 days. Abrasive cleaning or high pressure water blasting may be required for PCC to remove curing agents or form release compounds.

**Wood Decks** – Wood decks are commonly treated with preservatives, which may even accumulate on the surface. Excess preservative is to be removed by scraping and cleaning with solvent such as mineral spirits. Wood decks must be cleaned down to the wood surface. Some preservative types may not be compatible with PavePrep and may result in softening or adhesion loss.

**Milled Asphalt Concrete Surfaces** – Milled asphalt concrete surfaces are highly textured and may have difficult to remove embedded fines and dust in the surface. Cleaning should use high pressure compressed air. If the surface texture contains vertical surfaces or the texture is over 1/4" (6mm) deep, a leveling course should be used prior to membrane installation.

**Repair of Cracks, Joints & Other Distresses:** Cracks and joints in both asphalt concrete and Portland cement concrete surfaces that are wider than 1/4" (6mm) but not exceeding 2" (50mm) shall be cleaned and sealed with an approved quality hot applied sealant or an approved elastomeric chemically curing sealant that is suitable for use in typical applications in the project climatic area. Emulsified or cutback sealants or fillers should not be used. The sealant shall be applied flush with the surface or slightly recessed. Follow manufacturer and agency instructions for installation.

Cracks or joints over 2" (50mm) wide, or other voids, such as potholes, spalled areas, severely fatigued (alligatored) cracked areas, shall be cleaned of loose pavement or debris and patched with approved materials including Crafcop Polypatch, Mastic 1, ElastoCrete, ElastoPatch or TechCrete, a 3/8" (1cm) maximum sized hot mixed asphalt concrete or a quality cold applied patching material.

Note that solvent containing products must be allowed to fully cure prior to membrane placement, or adhesive loss, softening and blistering may occur as solvent evolves.

Vertical elevation differences greater than 3/8" (1 cm) shall be ground or milled smooth or wedged with an approved patching material or sealant product.

### **BONDING TO THE PAVEMENT:**

**PavePrep:** A properly applied layer of bonding adhesive is required to adhere PavePrep to pavement surfaces. The bonding adhesive should be a hot applied paving grade asphalt cement meeting requirements of ASTM D6373, "Standard Specification for Performance Graded Asphalt Binder", grades PG 70-10, PG 64-16 or PG 64-22 in moderate to hot climates and PG 58-22 or 58-28 in cooler climates. Asphalt cement is to be evenly spray or squeegee applied at 300 to 350°F (149 - 177°C) to the pavement surface at a rate of 0.15 gsy (0.70 l/sm) for PavePrep. The bonding adhesive should be applied approximately 1-2" (25 to 50mm) beyond the width of the PavePrep installation. For milled asphalt concrete pavement surfaces, application rate should be 0.20 gsy (0.93 l/sm). Bonding adhesive application rate may need to be slightly adjusted depending on the porosity and texture of the pavement. Excessive bonding adhesive applications may cause membrane slippage during paving. PavePrep is to be applied quickly into the hot bonding adhesive to assure adhesion. Sufficient adhesive should be used to saturate the bottom fabric layer and bond the membrane to the surface without excess. If a stronger bond is desired, Crafcoc PCF-100 may be used instead of the hot asphalt cement. PCF-100 should be applied at 350-400°F (149-204°C) at a rate of 0.15 to 0.20 gsy (0.70 to 0.93 l/sm).

Solvent cutback asphalts or emulsified asphalts are not to be used for adhering PavePrep to the pavement surface.

**PavePrep SA:** PavePrep SA does not require bonding adhesive for most installations when installation temperature is above 70°F (21°C). If the surface temperature is between 50°F (10°C) and 70°F (21°C) a primer or adhesive coat should be used. Crafcoc Asphalt Primer or an equivalent solvent based asphalt primer should be used at an application rate of 200 to 400 ft<sup>2</sup>/gallon (.12 to .24 l/sm). The application rate will depend on surface condition, porosity and texture. Application should result in a completely wetted surface without puddling. Primer must completely cure prior to membrane installation. Curing time required depends on weather conditions, including temperature, cloud cover, wind and humidity. At 70°F (21°C) on a sunny day curing will generally take from 30 minutes to 2 hours. At temperatures below 55°F (13°C) primer should be allowed to cure for at least 16 hours or overnight. Minimum temperature for primer applications is 45°F (7°C). Primer is cured sufficiently when it reaches a tacky condition when touched with no transfer to one's finger. All areas of the primed surface must reach this state of curing prior to membrane application. PavePrep SA is to be applied the same day as when the primer becomes fully cured. If not installed that day, the surfaces shall be re-primed. Alternatively, bonding adhesive can be the same hot asphalt cements or PCF-100 as listed above, except that the application rate should be .05 to .10 gsy (0.24 to .47 l/sm). If PavePrep SA is installed on milled surfaces or as bridge deck waterproofing, bonding adhesive or primer shall be used.

### **INSTALLATION:**

**Weather and Temperature:** The minimum surface temperature for installation of PavePrep products is 50°F (10°C). During installation weather must be dry, with no rain, drizzle or fog. Additionally, installation should not occur at temperatures less than the dew point due to the possibility of presence of surface moisture.

**Placement:** PavePrep and PavePrep SA are unrolled onto the prepared surface and into the bonding adhesive (if required) with the woven silvery side placed face up. When installing PavePrep SA, the release liner is removed during the unrolling process. During unrolling, the product should be kept in tension to minimize wrinkling. Both products can also be installed by cutting into strips and placing them individually instead of unrolling. When installing PavePrep, it must be placed into the hot bonding adhesive layer quickly so that the bottom fabric is saturated. Application trolleys are available to assist with unrolling and application. PavePrep and PavePrep SA are to be laid straight, smooth and wrinkle free.

**Pavement Cracks, Joints or Other Repairs** –PavePrep or PavePrep SA of the appropriate width is installed centered over the crack or joint with a minimum of 9" (23 cm) of membrane on each side of the crack or joint, except for longitudinal joints in PCC pavements where 6" (15 cm) on each side is the minimum. Bonding adhesive or primer shall extend approximately 1 - 2" (25 - 50mm) beyond each side of the membrane installation. At joints, it is recommended that the PavePrep or PavePrep SA strips be butted. The butt joints can be sealed with a 1/16 - 1/8" (1.5 - 3 mm) band of PCF-100 or other approved mastic applied 1 - 2" (25 - 50 mm) wide to assure waterproofing. Joints can also be made by overlapping, however, this results in thick areas which can reflect through to the overlying surface.

If overlapped, laps should be 2 to 5" (5 to 13cm) wide, and for PavePrep, must be treated with a layer of hot bonding adhesive. Laps should be installed to shed water and in the direction of paving. If transverse and longitudinal strips overlap, the longitudinal is to be installed over top of the transverse. Overlaps resulting in 3 layers are not permitted.

**Bridge Deck and Horizontal Surface Waterproofing Installations** – All bridge deck surfaces (portland cement concrete, asphalt concrete or wood) shall be treated with bonding adhesive or primer prior to installation of PavePrep or PavePrep SA. The membrane may be installed butted to the edge of the surface, tucked tightly into the corner and bonded to the vertical curb surface to the overlay level, or installed with a supplemental edge reinforcing strip at the corner. Membrane installation is to start at the low side and proceed to the high side so that laps shed water. Laps are to be 2 to 5" (5 to 13 cm) and all laps are to be tacked with hot asphalt cement or PCF-100. All laps, exposed edges, joints or other discontinuities in the membrane are to be sealed with Crafcoc PCF-100 sealant or other approved sealing mastic. Contact Crafcoc for additional information. Sealing should consist of applying a 1 - 2" (2.5 - 5 cm) wide layer of sealant or mastic, centered at the edge of the overlap and approximately 1/16 - 1/8" (1.5 - 3 mm) thick. If cold applied mastic is used, it must cure at least 24 hours prior to opening to traffic.

**Membrane Rolling:** Just after applying to the surface, PavePrep and PavePrep SA are to be pressure rolled to establish a tight and full continuous bond with the underlying surface. For pavements and bridge decks, pneumatic rollers are recommended, but static steel

wheel rollers can also be used. Rolling should consist of at least 3 passes. For milled surfaces, pneumatic rollers are required so that full surface contact is established.

**Installation Inspection and Repair:** Following rolling, the installation is to be inspected for deficiencies and repaired if required. Blisters should be punctured to allow air to escape, then pressed into place. Minor wrinkles less than 3/8" (1 cm) can be slit and re-adhered. Small punctures, slits, etc can be covered with sealing mastic. Larger areas of damaged membrane should be removed and patched with additional bonding adhesive and membrane with edges sealed with mastic. All joints and edges should be inspected for adhesion and sealing. If deficiencies are noted, they are to be corrected before proceeding with additional construction.

**Traffic:** After installation on pavement or bridge deck surfaces, *PavePrep* and *PavePrep SA* can be immediately paved on. Many times, though it is necessary for the pavement to be opened to traffic prior to overlay construction. These products are resistant to traffic for temporary short time periods, preferably less than 24 hours, but can be up to 7 days. Note that *PavePrep* and *PavePrep SA* are more slippery than pavement especially when wet. Cautions must be taken to limit the skid resistance hazards such as reducing speed and providing signage warnings. At areas with more severe traffic loadings, such as turning, braking and high slopes of over 5%, traffic exposure should be less than 24 hours. After the surface has been exposed to traffic, it must be inspected for damage and repaired if necessary prior to paving.

**PAVING WITH ASPHALT CONCRETE:** Paving can occur immediately over *PavePrep* and *PavePrep SA*. Following installation, the membranes may be exposed to rain without damage, but they must be dry prior to paving. Minimum compacted asphalt concrete thickness is 1 1/2" (3.8 cm). The asphalt concrete mixture type used should be as specified by the highway agency. Note that in some cases with thin overlays, a shadowing effect, in which the membrane pattern is seen in the overlay surface, may occur due to the thickness of the membrane. If this occurs, increasing overlay thickness or use of 2 lift paving can eliminate the effect.

**Tack Coat:** A tack coat must be applied prior to paving. Recommended tack coat application rates are 0.10 to 0.12 gsy (.24 to .29 l/sm) (residual) of paving grade asphalt cement or standard emulsified asphalt tack coat materials. Cutback tack coats are not permitted as they may soften the membrane.

**Placing Asphalt Concrete:** The asphalt concrete is placed using standard procedures with the following exceptions: Windrow paving that places hot windrows of asphalt concrete mix on top of the membrane must not be used. Screed burners should be turned off as the close heat may damage the membrane. Laydown should proceed smoothly and uniformly to minimize starting and stopping which may damage the membrane. Mix should be placed from low to high points. When paving over *PavePrep* or *PavePrep SA*, laydown temperature should not exceed 350°F (177°C).

**Compaction:** Use of dual drive rollers is recommended. Compaction should occur using standard procedures, except that when using vibratory rollers, amplitude should be set low and frequency high. Mix shoving may occur during compaction in rare cases with some mixes due to the varying surface characteristics of the pavement and the membrane. If shoving occurs, slowing the rolling speed, using dual drive or pneumatic rollers or lowering laydown and compaction temperatures may reduce the effect.

**STORAGE:** *PavePrep* and *PavePrep SA* must be protected from and not be exposed to moisture and rain during shipping and prior to installation. The plastic wrap on the pallets does not protect the product from moisture. Product which has been exposed to moisture may not adhere adequately. Any material that becomes wet prior to installation shall be removed from the jobsite and discarded. Storage temperature shall not exceed 120°F (49°C). During storage, the plastic release liner may change color due to being in contact with the asphalt adhesive. This change is normal and does not adversely affect the product.

**SAFETY PRECAUTIONS:** Prior to use, the user must read the Material Safety Data Sheets for these products. Installation requires use of cutting tools, rollers and other equipment and workers may be in traffic environments or on elevated or below grade surfaces. Adequate safety precautions and traffic control measures are to be taken to protect workers during the installation process. Primers, if used, may contain combustible or flammable solvents. Adequate fire protection measures are to be taken during primer installation as specified in the primer MSDS.

**ADDITIONAL INFORMATION:** For additional information, refer to Product Data Sheets and Material Safety Data Sheets for these products or contact CrafcO, Inc. at [www.crafcO.com](http://www.crafcO.com).