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**READ BEFORE USING THIS PRODUCT**

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**GENERAL**

These products are hot-applied, single component polymer/rubber modified products supplied in solid form used to seal or fill cracks or joints in asphalt concrete or Portland cement concrete pavements. These products are not fuel resistant and should not be used in fuel or oil spill prone areas. To use boxed materials, product is removed from the package, heated in a melter and applied to the pavement. For products in meltable packaging (NoBox) and RoadSaver Gray materials, the entire package is added to the melter. Details on product specifications, climate and usage suitability, and product selection are contained in Product Data Sheets.

**MELTING AND APPLICATION**

These products must be melted in jacketed double boiler melters with effective agitation that meet requirements of Appendix X1.1 of ASTM D6690. Crafco Super Shot, EZ Series 2, and EZ Pour melters are recommended. Do not use direct fired or air heated machines unless stated on the product data sheet. Heat transfer oil should not exceed 525°F (274°C). The melter must be capable of safely heating product to 400°F (204°C).

**CAUTION:** Stop agitation when adding product to prevent splashing. Product is heated to between the minimum application temperature and the maximum heating temperature which are shown on product containers and Product Data Sheets. These products are most effectively applied with pressure feed wand systems. RoadSaver, PolyFlex and Parking Lot products can also be applied using gravity feed pour pots (Part No.40200 and 40201).

**APPLICATION LIFE**

Application life, when heated to application temperature, is approximately 12 to 15 hours and may be extended by adding fresh product. Product shall be agitated during installation. Product may be reheated once to application temperature, after initial heat up. When application life has been exceeded, RoadSaver and Parking Lot products will thicken, become “stringy” and may then gel. If this occurs, product should immediately be removed from the melter and discarded. Asphalt Rubber and PolyFlex products will soften when overheated or heated for too long.

**PAVEMENT TEMPERATURES**

Apply product when pavement temperature exceeds 40°F (4°C). Lower temperatures may result in reduced adhesion due to presence of moisture or ice. If pavement temperature is lower than 40°F (4°C), it may be warmed using a heat lance (Part No. 45650) that puts no direct flame on the pavement. If installing at lower pavement temperature than 40°F (4°C), extreme care should be used to ensure that cracks or joints are dry and free from contaminants. Product temperature should be maintained at the maximum heating temperature. If installing at night, assure dew is not forming on pavement. Applied product should be checked by qualified personnel to ensure adequate adhesion.

**TRAFFIC CONTROLS**

Place traffic controls in accordance with Part 6, Temporary Controls, of the FHWA Manual on Uniform Traffic Control devices (MUTCD) to protect the work site for the duration of the repairs.

**CRACK / JOINT CLEANING**

For appropriate adhesion, cracks or joints must be thoroughly clean and dry immediately prior to product installation. After widening or debris removal, and just prior to product installation, final cleaning shall use high pressure 90 psi (620kpa) minimum, dry, oil free compressed air to remove any remaining dust. Both sides of the crack or joint shall be cleaned. Surfaces should be inspected to assure adequate cleanliness and dryness.

## **ASPHALT PAVEMENT CRACK SEALING**

Crack sealing consists of installing extensible sealants into routed reservoirs in working cracks in pavements in good condition.

**a) Reservoir Cutting** - Based on the 98% LTPPBIND temperature range (difference from high to low), cracks are to be routed as follows:

| <u>Temperature Grade Range</u> | <u>Reservoir Width</u> | <u>Reservoir Depth</u> |
|--------------------------------|------------------------|------------------------|
| 80°C or less                   | ½" (12 mm)             | ¾" (19 mm)             |
| 86°C                           | ¾" (19 mm)             | ¾" (19 mm)             |
| 92°C                           | 1 1/8" (28 mm)         | ½" (12 mm)             |
| 98° or greater                 | 1 ½" (38 mm)           | ½" (12 mm)             |

Reservoir width should not exceed 1 ½" (38 mm). Cutting should remove at least 1/8" (3 mm) from each side and produce vertical, intact surfaces with no loosely bonded aggregate. The pavement should be sound enough to resist significant spalling during cutting. Final reservoir width should not exceed twice the cutter width or 1 ½" (38 mm) maximum.

**b) Installation and Finishing** - After cleaning, sealant at the required temperature is installed in the reservoir. Sealant can be installed with up to a 3/8" (10 mm) underfill, flush fill, or with an overband cap that does not exceed 1/16" (1.5mm) above the pavement surface, and not greater than a 2" (50 mm) width beyond crack edges, depending on project specifications. These configurations are achieved using appropriate wand tips, shoes or squeegees. To reduce surface tack, Crafcro DeTack or other approved material may be applied.

## **ASPHALT PAVEMENT CRACK FILLING**

Crack filling consists of installing flexible, traffic resistant product into prepared, cleaned, non- working pavement cracks. Filler can be installed in routed or unrouted cracks or in surface overbands.

- A. **Routed Reservoir** - Routed reservoirs are recommended for longest life. Guidelines for determining reservoir use are:
  1. Crack density should not exceed approximately 20% (linear feet of cracks per square feet of pavement area).
  2. Pavement should be sound enough to resist significant spalling during cutting. (Final reservoir width should not exceed double the cutter width, or 1 ½" (38 mm) maximum)
- B. **Reservoir Dimensions** - Determined as follows:
  1. The cut should remove at least 1/8" (3mm) from each side of the crack and cut back to sound pavement.
  2. Minimum width is ½" (12 mm), maximum is 1 ½" (38 mm).
  3. Recommended cut depth is ¾" (19 mm).
  4. Reservoirs are then cleaned with compressed air.
- C. **Cleaned Unrouted Cracks** - Cracks may be cleaned and filled without reservoirs, but longer life is achieved with reservoirs. Cleaning consists of using high-pressure dry, clean compressed air, brushing, or vacuum techniques to remove debris.
- D. **Surface Overbands** - Product can be applied in overbands after crack cleaning with compressed air. Overbands should not exceed 1/16" (1.5 mm) high above the pavement surface and not extend greater than 2" (50 mm) beyond each crack edge.
- E. **Filler Installation and Finishing** - Same as sealant installation and finishing.
- F. **Crack Filling with RoadSaver Gray Sealants** - Overband installations are permitted only when ambient temperature is below 90°F (32°C) and decreasing. Overband installations shall not be performed when ambient temperature is expected to exceed 90°F (32°C) within 2.5 hours after sealant placement. De-tacking is required for all overband installations. Recess fill installations may be performed at any pavement temperature.

## **PORTLAND CEMENT CONCRETE PAVEMENT JOINT SEALING AND RESEALING**

Joint sealing and resealing consist of installing extensible sealants into sawn and cleaned joint reservoirs in PCC pavements.

**a) Reservoir Sawing** - New concrete should be cured for at least 7 days prior to sawing the joint reservoir. Joint spacing should be at the design dimension, generally from approximately 12 to 20 ft. (3.7 to 6.2m). Joints shall be at least ¼" (6mm) wide and should not exceed 1½" (38mm). For new pavements designed with narrow joints using the initial narrow saw cut as the reservoir, spaced at 15 ft (5m) maximum, and when using low modulus type sealants, joint width may be as narrow as 1/8 inch (3mm). Contact CrafcO for more details. Reservoir depth should allow a sealant depth to width ratio of 1:1 to 2:1, sufficient depth for backer rod, and the specified surface recess. Reservoirs shall be cut no deeper than required. When resealing, old sealant can be removed by knives, plows or sawing. Sawing shall slightly widen the joint by 1/8 to ¼ inch (3-6mm) to remove all traces of old sealant and produce clean, intact vertical surfaces. Maximum joint width is 1 ½ inch (38mm).

**b) Reservoir Cleaning** - After sawing, joints shall be flushed with water to remove sawing slurry and allowed to dry. Just prior to installing sealant, both joint surfaces shall be cleaned using sandblasting, brushing or other means to remove any remaining of sawing residue. Final cleaning is then done with high-pressure (minimum 90 psi, 62N/cm<sup>2</sup>) clean, dry, oil free compressed air the same day that sealant is installed. Moisture and oil traps are required on the compressor. Joints must be inspected to ensure cleanliness by rubbing a finger along each face to spot dust or other contaminants. If found, recleaning should occur until joints are completely clean and dry. The objective of sawing and cleaning is to provide vertical, intact, clean concrete bonding surfaces free from all contaminants and are dry.

**c) Backer Rod** - After cleaning, heat resistant backer rod (ASTM D5249, Type I) approx. 25% larger than the joint width shall be installed to the required depth without damage or punctures. Punctures or damage to backer rod may cause sealant bubbling.

**d) Sealant Installation** - Concrete should be cured at least 7 days prior to installing sealant. Sealant heated to required temperature is installed per project specifications. Typical installations include a recess up to ¼ inch (6mm), flush, or with a surface overband (maximum 1/16" (1.5mm) above the surface, and 2" (50 mm) maximum beyond each joint edge).

**e) Joint Sealing with RoadSaver Gray Sealants** - Overband installations are permitted only when ambient temperature is below 90°F (32°C) and decreasing. Overband installations shall not be performed when ambient temperature is expected to exceed 90°F (32°C) within 2.5 hours after sealant placement. De-tacking is required for all overband installations. Recess fill installations may be performed at any pavement temperature.

## **INSTALLATION PRECAUTIONS**

In certain situations, additional consideration needs to be given to product selection and application geometries.

**a) Parking lots and other areas subjected to slow moving traffic and pedestrians** - Product used must be stiff enough at hot summer temperatures to resist pick up and should not be applied on top of the pavement surface. Product should have a high temperature grade at least one step above the LTPPBIND grade for the climate. For even better pick- up resistance, increase by two grades.

**b) Pavement to receive an Overlay, Surface Treatment, or Seal Coat** - Product will be subjected to overlay heat effects and carriers for surface treatments and seal coats. If product is applied on top of the pavement, and an overlay is then placed, bumps may occur during compaction. Refer to "Bump Formation & Prevention in Asphalt Concrete Overlays Which Have Been Crack Sealed" ([www.crafcO.com](http://www.crafcO.com)) for more information. Solvents or other carriers in surface treatments may soften product. Prior to placing a surface treatment or seal coat, a test strip should be placed to verify compatibility of the product and treatment.

**c) High Severity Cracked Areas** - Highly cracked areas (fatigue cracks in wheel paths) should not be treated by covering cracks because pavement friction may be affected. These cracks can be filled if followed by a surface treatment or overlay to restore friction.

**d) Fuel or Oil Spill Areas:** These products should not be used in fuel or oil spill areas due to softening of the sealant that may occur. Sealant will not adhere to asphalt or concrete pavements surfaces that are contaminated with oil spills.

**e) Crack Sealing or Filling in Pavements with Surface Treatments** - When crack sealing or filling pavements with chip seals, slurry seals, and open graded friction courses, routing should be deep enough to extend through the surface treatment layer into the underlying asphalt concrete. This anchors product into solid pavement for better bonding.

### **CLEAN OUT**

If melters used require clean out, follow manufacturer's instructions. If solvent is used, ensure it does not contaminate product because dilution and flash problems may occur.

### **STORAGE**

Pallets of product are protected with a weather resistant covering. During storage, this covering must be intact to prevent boxes from getting wet. If wet, boxes may lose strength and crush. Rips in the pallet covering should be repaired to maintain packaging integrity. Pallets should be stored on a dry, level surface with good drainage. Pallets should not be stacked because crushing of bottom boxes may occur. Product properties are not affected by packaging deterioration.

### **SAFETY PRECAUTIONS**

Since these products are heated to elevated temperatures, it is essential that operations be conducted safely. All personnel need to be aware of hazards of using hot applied materials and safety precautions. Before use, the crew should read and understand product use and safety information on the box and the product SDS. Users should check D.O.T. requirements for transportation of product at elevated temperatures above 212°F (100°C).

### **HAZARDS ASSOCIATED WITH HOT-APPLIED MATERIALS**

Skin contact with hot materials causes burns. Over exposure to fumes may cause respiratory tract irritation, nausea, or headaches. Precautions are to be taken to prevent contact with hot material and to avoid inhalation of fumes for everyone in the vicinity. Safety precautions should include:

1. Protective clothing to prevent skin contact with hot material.
2. Care when adding product to melters to reduce splashing.
3. Careful operation of wands or pour pots that apply product.
4. Traffic and pedestrian control measures which meet or exceed Manual on Uniform Traffic Control Devices (MUTCD) requirements to prevent access to work areas while product is in a molten state.
5. Avoidance of material fumes.
6. Proper application configurations with a minimum amount of material excess.
7. Appropriate cleanup of excessive applications or product spills.

### **ADDITIONAL INFORMATION**

Additional information regarding these products is available by contacting your distributor or Crafc0, Inc. This information includes:

1. Product Data Sheets
2. Safety Data Sheet
3. Safety Manual