



420 N. Roosevelt Ave. • Chandler AZ 85226  
1-800-528-8242 • (602) 276-0406 • FAX (480) 961-0513  
www.crafco.com

## INSTALLATION INSTRUCTIONS HOT-APPLIED SUPERSEAL SEALANTS

JANUARY 2008

### READ BEFORE USING THIS PRODUCT

**GENERAL:** Crafco Hot-Applied Superseal sealants are liquid, hot-applied, single component materials which when properly applied form resilient and adhesive compounds which effectively seal joints in portland cement concrete pavements. Since Superseal sealants contain coal tar, which is not compatible with asphalt, they are not be used to seal asphalt concrete cracks or joints or in places where they will be in contact with asphalt concrete pavement, or any asphalt containing materials or residues.

**HEATING:** Crafco Superseal sealants must be heated in oil jacketed double boiler type melter units equipped with both agitation and recirculation systems. During heating Superseal sealants will be thin up to temperatures of approximately 170°F (77°C). Between 170°F (77°C) and 200°F (93°C) the sealant will thicken considerably as constituents polymerize. Melter applicators used must have sufficient power to maintain continuous agitation through the thickening stage. As temperature increases above 240°F (116°C) the sealant will begin to thin. When 250°F (121°C) is reached, the material circulation pump should be started. Heating shall continue to between the minimum application temperature of 270°F (132°C) and the maximum heating temperature of 290°F (143°C). Superseal products are ready for installation when application temperature is reached and product has become uniform and smooth. If application temperature is reached and product is not yet a smooth consistency, continue mixing while maintaining proper application temperature until product becomes smooth. Melter applicators with horizontal agitators should be powered by an engine of at least 16 HP and be equipped with an agitator in first class operating condition. For melter applicators with vertical agitation, the engine should have at least 12 HP. The melter applicator shall also be equipped with a rotary pump with a 2 inch (5cm) minimum port size and without an internal pressure relief valve. The pumping system should include a 2 inch (5cm) manual bypass or a method of pumping through the applicator wand that will allow recirculation of the sealant from the pump back into the heating vat at the top of the tank. A 15 foot (5m) sealing hose with a 1 inch (2.5cm) inside diameter, coupled to a sealing wand with a 3/4 inch to 1 inch (1.9-2.5cm) inside diameter is ideal. Recommended melters include the Crafco EZ Pour 100 and 200, and the Crafco EZ Series 2 1000 melter. Contact Crafco for applicability of other melters. Superseal sealants must be charged into a clean melter. All residues from previous sealants must be cleaned out of the entire system. This is accomplished by heating the melter to remelt residue and flushing the system with 10 gallons (38L) of Crafco Flush Oil (Part No. 34630). Superseal sealants may be charged into a clean melter as soon as the oil bath heaters and sealant agitator are operational. The entire amount of material may be added at once and the polyethylene liner from the material pail may also be included. Do not completely fill machine with cold sealant because the material will expand approximately 10 percent when reaching application temperature. Important precautions during heating are as follows:

1. **AGITATION:** It is absolutely essential that continuous agitation of Superseal sealants be maintained when heat is being applied.

2. **TEMPERATURE CONTROL:** Temperature controls and indicators on the sealing machine must be maintained to a degree of accuracy than can be totally relied upon. An additional hand held temperature gauge should also be used to verify sealant temperature.
3. **MAXIMUM HEATING TEMPERATURE: Do not exceed the maximum heating temperature.** Temperatures in excess of the maximum heating temperature reduce the pot life drastically and will cause gelling (curing to a solid) in the melter. If this happens, it is necessary to remove the sealant physically from the melter by cutting, scraping, etc. and disposing of properly. Superseal sealants may be remelted if allowed to cool and become solid, however they may not meet the intended specifications and should not be applied to pavement joints. At the maximum heating temperature the application life of Superseal sealants is approximately eight hours.
4. **RECIRCULATION AND PUMPING:** Do not attempt to pump or recirculate Superseal sealants at temperatures under 250°F (121°C), because of the potential of plugging pumps and piping.
5. **ADDING SUPERSEAL WHILE SEALING:** One of the following two methods is recommended:
  - A. Stop sealant installation. Sealant in the melter must be at proper installation temperature. Add full five gallon pail(s), the polyethylene bag liner may be included. A maximum amount of 10% additional material can be added to the heated sealant. After addition, circulate material through plumbing and applicator wand back into the melter for a minimum of ten minutes after adding the additional material. Prior to restarting sealant application, assure that sealant is at proper installation temperature and is a smooth consistency.
  - B. Assure that sealant in the melter is at proper installation temperature. Place fresh material into a tray mounted inside the melter lid opening. This tray should control the rate of fresh material addition to one-half gallon (2L) or less, per minute. The polyethylene bag liner can be added to the melter when most of the fresh material has drained from it. It is not necessary to wait for material reaction when using this method. If at any time the sealant does not appear smooth and uniform, stop application and continue mixing until it becomes smooth and uniform before resuming installation.

Special care should be given to avoid plugging the machine when adding to less than fifty gallons of heated material. Do not pump or install sealant that is below the minimum application temperature.

**TRAFFIC CONTROLS:** Place traffic controls in accordance with part 6, of the FHWA Manual on Uniform Traffic Control Devices (MUTCD) to protect the work site for the duration of the repairs.

## **JOINT PREPARATION AND SEALANT APPLICATION:**

**NEW CONCRETE:** Joints should be sawed to produce a minimum size of 3/8" x 1 1/2" (10 x 38 mm), on approximately 15 foot (5m) spacing. Joints 1/2 inch (12mm) wide should be 1 3/4 inch (44mm) deep and 5/8 (16mm) inch wide should be 1 7/8 inch (48mm) deep. Prior to sealing the joint, surfaces should be cleaned of all dirt, curing compound residue, laitance and any other foreign material. After sawing, immediately flush the joints with water to remove a majority of the saw slurry. After the joints have dried, just prior to applying sealant, the remaining residue must be removed by sandblasting **Both Joint faces must be adequately sandblasted to remove all traces of sawing residue.** For effective sandblasting the nozzle should be positioned within 2 inches (5cm) of the surface being cleaned. After sandblasting the joint should be cleaned using clean compressed air with a minimum pressure of 90 psi (620 kpa). Moisture and oil traps are required on compressor unit. The objective of the above cleaning operations is to provide vertical, intact and clean concrete bonding surfaces which are free from all contaminants and are dry. Joints should be fully inspected to assure that the appropriate level of cleanliness has been achieved. This can be accomplished by rubbing your finger along each joint face, if any evidence of dust and contamination occur, additional sandblasting should be performed until all dust and contaminants are removed. Non-water absorptive and heat resistant backer rod which is about 25% larger than the joint width should be placed in the joint to provide a minimum sealed depth of 3/4 inch (19mm).\* Do not puncture the backer rod. Damaged backer rod may cause sealant to bubble. Sealant should be applied at a temperature between the recommended pour temperature and the safe heating temperature. Sealant is to be recessed 1/8 to 1/4 inch (3 to 6 mm) below the pavement surface for joint widths less than 5/8 inch (16mm), to prevent contact with vehicle tires. Sealant should not be applied if ambient temperature or joint temperature is below 50°F (10°C) or in excess of 90°F (32°C). Bubbles can develop in hot-applied sealant which has been installed in concrete pavements. Bubbles may develop within the first year of field service when hot summer temperatures occur. Bubbling is generally more noticeable in pavement less than one year old. Hot ambient temperatures can cause moisture in the concrete to vaporize. Moisture vapor can migrate through the sealant creating bubbles. An alternate sealant should be used if bubbling is not acceptable. Low modulus non-sag silicone sealant will reduce bubble formation. Contact CrafcO for further information.

**RESEALING:** Old sealant should be removed by any appropriate method such as using a joint plow, a router, or hooks. After removal of old sealant, the joint is to be saw cut to an appropriate width to provide clean vertical bonding surfaces which are free from contamination by old sealant. If any old sealant residues remain, there is a possibility of a compatibility reaction with Superseal sealants, which can cause softening and bleeding during warm temperatures. As a general rule, the joint should be sawn to a width between 1/8 inch and 1/4 inch (3-6mm) wider than the original joint. The same joint dimensions listed in the "New Concrete" section should be used. If joints wider than 5/8 inch (16mm) are required, sawing depth shall provide for a 3/8 inch (9mm) minimum recess (to prevent contact with vehicle tires), a 3/4 to 1 inch (19 to 25 mm) sealant material thickness, and adequate space for the backer rod. Maximum joint width is 1 1/2 in. (38 mm). The additional sandblasting and cleaning operations contained in the above "New Concrete" section should then be followed prior to installing sealant.

**CLEAN OUT:** Superseal sealants should not be reheated and applied, therefore, the sealing machine must be completely emptied at the end of the sealing run and the entire system flushed with CrafcO Flushing Oil (Part No. 34630). Ten gallons (38L) of flush oil should be used, circulating it through the bypass system as well as the sealing hose and wand. Once the system has been cleaned and emptied, the flush oil should be disposed of properly and not reused.

**SAFETY PRECAUTIONS:** All personnel involved with the sealing operation should read the Material Safety Data Sheet for CrafcO Superseal sealants before sealing is started. User should check D.O.T. requirements for transportation of sealant at elevated temperatures above 212°F (100°C).

**STORAGE:** Superseal sealants should not be stored in direct sunlight, and ambient storage temperature should not exceed 100°F (38°C). Do not store sealant outside under a tarp or plastic cover as this could lead to excessive heat buildup under the cover. Sealant should be stored inside with adequate ventilation. With time, the suspended solids in the Superseal can begin to settle. When settling is light, the pail may be turned over for 8 – 24 hours to re-suspend the solids before being poured into the melter. After 2 years the settlement will begin to harden and the Superseal must be disposed of properly. The Shelf life of Superseal is 2 years minimum from date of shipment.

**SAFETY AND USAGE PRECAUTIONS:** Since Superseal Sealants must be heated to elevated temperatures to prepare for use, it is essential that operations be conducted in manners which assure safety of the application personnel and other. All personnel associated with use of the material need to be aware of the hazards of using hot applied materials and safety precautions. Before use, the crew should read and understand all sections of the product Material Safety Data Sheet. This sheet which is supplied with each shipment, describes the characteristics of the product as well as any potential health hazards and precautions for safe handling and use.

**HAZARDS ASSOCIATED WITH HOT APPLIED MATERIALS:** Simply stated, skin contact with hot applied materials will cause burns. Additionally, over exposure to fumes may cause respiratory tract irritation, nausea, or headaches. Therefore, appropriate precautions need to be taken to prevent contact with the hot material, and to avoid inhalation of fumes for everyone in the vicinity of the sealing operation. 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 and control of wands or our pots which are used to apply product. 4. Traffic and pedestrian control measures which meet or exceed MUTCD requirements to prevent access to work areas while product is still in a molten state. 5. Avoidance of material fumes. 6. Proper application configurations with a minimum amount of excesses of material. 7. Appropriate clean up of excessive applications or product spills.

**ADDITIONAL INFORMATION:** Additional information regarding these products is available by contacting your distributor or CrafcO, Inc. This information includes 1) Product Data Sheets, 2) Material Safety Data Sheets, 3) Safety Manual, 4) Sealant Selection Guide.

\*For CrafcO Superseal Low-Mod, #34656, minimum sealant depth should be 1/2" (12 mm)