

POLYPATCH and POLYPATCH FINE MIX

PART NOS.	PolyPatch	34282
	PolyPatch Fine Mix	34285

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READ BEFORE USING THIS PRODUCT

GENERAL: These instructions are for CrafcO PolyPatch and PolyPatch Fine Mix. PolyPatch products are hot-applied, pourable, self-adhesive materials used for preservation, maintenance and repair of asphalt and portland cement concrete pavements and bridge deck surfaces. These products are specially formulated to repair distresses which are larger than those typically repaired by crack or joint sealing, but smaller than those requiring remove and replace patching procedures. To use, PolyPatch is removed from the box, heated to installation temperature in an appropriate melter, applied to prepared pavement surfaces and allowed to cool. PolyPatch forms well bonded, flexible, load resistant and lasting pavement repairs. PolyPatch products are supplied in two grades: PolyPatch and PolyPatch Fine Mix. PolyPatch Fine Mix has finer aggregate than PolyPatch, for improved edge feathering in thinner installations.

MELTING, HEATING AND AGITATING: PolyPatch is supplied in boxes containing 30 lbs (13.6 kg) of pre-measured polymer modified binder and aggregate. To use, the contents of each box are placed into and heated in an appropriate indirectly heated melter with sufficient agitation (Crafco Patcher I, Crafco Patcher II, or other approved melter). **If inappropriate melters are used, application difficulties, pump system damage, and extreme wear can result.** During melting and heating, the heat transfer oil should be heated to 450°F – 525°F (232°C – 274°C). PolyPatch is then added to the melter. When material has melted sufficiently for the agitator to turn, agitation should begin. PolyPatch is then heated to the application temperature range of 375°F – 400°F (190°C – 204°C) prior to applying to the pavement. It is recommended that a secondary device be used to measure temperature of material (i.e. infrared heat gun, hand held thermometer, etc.) prior to application. For maximum production, jobs should begin with the melter nearly full of PolyPatch that has been heated to application temperature. At application temperature, PolyPatch is a thick, grainy appearing slurry. During use of PolyPatch, as the quantity in the melter decreases, additional product can be added. Caution: Do not agitate when adding additional PolyPatch. If the material temperature in the melter drops below 375°F (190°C) when additional PolyPatch is added, installation should stop until the correct application temperature range is once again reached. During installation, agitation should be constant, except for when adding additional product.

PAVEMENT TEMPERATURES: Apply PolyPatch when pavement temperature exceeds 40°F (4°C). Lower temperature may reduce adhesion due to presence of moisture or ice. If pavement temperature is less than 40°F (4°C), warm with a heat lance (Crafco Part No. 45650) that puts no direct flame on the pavement. If installing at night, assure that dew is not forming on the pavement surface. Applied product should be checked by qualified personnel to assure that adhesion is adequate.

TRAFFIC CONTROLS: Place appropriate 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.

INSTALLATION PROCEDURES:

1. Only apply PolyPatch to clean, sound, dry surfaces. Avoid highly distressed areas in need of reconstruction. All areas must be clean from dust and debris. All areas to be repaired shall be blown clean with dry, oil free compressed air at 90 psi (620 kpa) minimum. If compressed air does not remove all debris or dust coatings, additional cleaning procedures such as sweeping with a stiff or wire bristle broom, sandblasting or routing are recommended. Work areas must be as clean, or cleaner than with sealants. **(If sealant won't adhere, neither will PolyPatch.)** PCCP shall be abrasive cleaned to achieve best adhesion.
2. Preheating shall be used in wet/freeze climates on all applications. This technique is also required on all applications in all other areas when ambient temperature is less than 40°F (4°C) or if moisture is present. A heat lance is recommended due to the high BTU's for quick heating and so the area can be blown with compressed air at the same time, eliminating a second operation. Asphalt concrete pavement should be heated so a slight bleeding effect occurs. This bleeding brings some of the asphalt binder to the surface, which enhances the adhesive bond between PolyPatch and road surface. However, caution should be taken to prevent overheating/oxidizing the asphalt brought to the surface as this could be detrimental to adhesion performance. Heating the pavement will also remove moisture assuring a dry surface. Elevating the pavement temperature also slows the cooling process and allows PolyPatch to remain molten longer enabling the binder to adequately drain assuring positive contact with the pavement. PolyPatch should be applied within ten minutes of preheating the work area. PCCP should be warmed slowly and cautiously to avoid mixture damage.
3. Heated PolyPatch is then installed in the pavement. PolyPatch can be poured into the prepared area directly from the melter, poured from the melter into an appropriate bucket such as the CrafcO TechCrete Bucket (Part No 32263) and then applied, or poured into the CrafcO Material Handler (Part No. 57650) and installed. When surface patching distressed areas, PolyPatch must be applied at least six inches beyond the distressed work area to sound pavement surfaces. For placing PolyPatch in wide cracks, CrafcO Shoebox applicators can be used (Part Nos. 32350-32353, 32255, 32250, 32252, or 32253). Always apply PolyPatch within the application temperature range of 375 to 400oF (190-204oC)
4. PolyPatch must be applied to a thickness exceeding 3/8 in (1cm). This enables longer heat retention and proper adhesion of the binder. Just after applying to the pavement, PolyPatch must be leveled to the surface level using a metal squeegee, CrafcO Ironing Wand (Part No 32243), or a CrafcO Shoebox. PolyPatch should not be overworked due to cooling and segregation that may affect adhesion. Avoid down pressure on the leveling tool while leveling material. Slight lifting of the tool reduces indentations and reduces overworking the material. When possible, keep the leveling tool full of hot material, which helps maintain proper material temperature and reduces overworking.

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5. **Optional** - Routing a +/-3 in (7.5 cm) wide by minimum 3/8 in (1 cm) deep reservoir at the edges of the work area assures proper PolyPatch thickness at edges, creates a clean and sound bond line, helps to maintain straight work area borders and results in a finished application flush with the surrounding pavement. (Contact CrafcO for more details)
6. All edges shall be heated and melted after application. This is performed with the lance or torch while the PolyPatch is still warm, which will reduce the amount of heating required. Heating assures that the repair is well adhered and encapsulated along the edges and will eliminate surface moisture from migrating under the PolyPatch. Do not overheat.
7. Apply CrafcO Detack to allow quick opening of the area to traffic. Make sure PolyPatch has cooled sufficiently to support loads prior to opening to traffic.

USES AND INSTALLATION CONFIGURATIONS: The general use of PolyPatch is to repair pavement deficiencies which are larger than those that can be appropriately filled with pavement sealants, but smaller than those where conventional remove and replace patching procedures are used. Typical uses include (but are not limited to):

- 1) Filling pavement cracks or joints over 1.5 in (3.8 cm) wide,
- 2) Filling potholes,
- 3) Leveling depressed thermal cracks,
- 4) Repairing deteriorated longitudinal joints,
- 5) Skin patching,
- 6) Pretreatment of cracked areas prior to surface treatments,
- 7) Repairs prior to surface treatments
- 8) Leveling manhole covers, bridge deck approaches, or other settlement at structures,
- 9) Capping settled utility cuts,
- 10) Filling spalls, popouts, and corner breaks

Note: Polypatch products shall not be used for surface skin patch repairs at intersections unless followed by a surface treatment.

PolyPatch Fine Mix is generally used for installations less than 2 in (5 cm) deep, and where a feathered edge is desired. Minimum installation depth for PolyPatch Fine Mix is 3/8 in (1 cm). PolyPatch is generally used for installations over 2 in (5cm) deep. Minimum installation depth for PolyPatch is 1 in (2.5 cm). PolyPatch installations over 4 in (10 cm) deep can be bulked by adding up to 25% by volume of CrafcO Structural Aggregate (Part No. 34033) to the patch in layers for improved stability and quicker cooling. PolyPatch Fine Mix installations over 2 in (5cm) deep can also be bulked.

PolyPatch binder is self-adhesive and develops a strong bond to the pavement. Approximately 5% shrinkage will occur as PolyPatch cools to ambient.. No compaction is required. After application, time must be given for the product to cool before opening the area to traffic. Cooling time varies depending on installation size and ambient temperature. Allow approximately 30 to 60 minutes of cooling for each 1 in (2.5cm) of material depth. For installations over 2.5 in (6.2cm) deep, PolyPatch should be applied in layers not exceeding 2.5 in (6.2cm) thick with cooling to 200oF (93oC) maximum before applying the next layer. The final layer to pavement surface level should be ½ to 1 in (1.2 to 2.5 cm) thick. Layering reduces material shrinkage during cooling. Roofing felt or other similar strips can be used along the work area boundaries to create neat, well defined edges. Strips should be removed immediately after application before material cools.

APPLICATION LIFE: Application life at application temperatures is approximately 12 to 15 hours. Application life may be extended by adding additional product as quantity in the melter decreases. The material may be reheated to application temperature once, after the initial heat up. Additional reheating of the material may result in degradation of properties. At the end of the installation day, it is recommended that the melter be as empty as possible. Product volume of no more than 25% of melter capacity should be left in the melter for reheating. When reheating, a volume of PolyPatch equal to or greater than the amount being reheated should be added to the melter for the next installation. When the application life has been exceeded, PolyPatch will begin to thicken, become "stringy" and may then gel. If this occurs, the material should immediately be removed from the melter and discarded.

PRECAUTIONS: PolyPatch products will soften, become sticky, and track if exposed to fuel or oil spillage; therefore, they should not be used in areas subject to fuel or oils.

STORAGE: Pallets of PolyPatch are protected with a weather resistant covering and can be stored outside. During storage, the protective wrap must be kept on the pallets to prevent boxes from getting wet. If boxes are subjected to moisture, they may lose strength and crush resulting in pallet leaning. If rips in the pallet covering occur during handling, they should be repaired to help maintain packaging integrity. Pallets should be stored on a level surface which is dry and has good drainage. Pallets should not be stacked because crushing may occur. PolyPatch material properties are not affected by packaging deterioration.

SAFETY PRECAUTIONS: Since PolyPatch is heated to elevated temperatures, it is essential that operations be conducted in manners which assure safety of personnel. All 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 product use and safety information on each box of material and the product SDS. 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. User 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 applied materials causes burns. Over exposure to fumes may cause respiratory tract irritation, nausea, or headaches. 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 work area 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 tools 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) Safety Data