



APPLICATION INSTRUCTIONS

HotTape™ Preformed Thermoplastic Pavement Markings

First-time applicators should contact Ennis-Flint for product support and on-site training.

SURFACE APPLICATION, GENERAL REQUIREMENTS:

Equipment:

- Magnum Torch or equivalent propane fueled torch with pressure regulator and 25 ft. of hose
- Infrared Thermometer
- Tape Measure
- Adequate Supply of Propane
- Gas Powered Blower or Broom
- Chalk Sticks and Chalk Snap Line
- Utility Knife, Putty Knife

Surface: Asphalt and concrete must be free of dirt, dust, chemicals or significant oily substances. Portland cement concrete must be free of all curing compounds. Any residual salts or other deicing chemicals must be removed prior to application. HotTape™ can be applied on new or old thermoplastic. **Concrete substrates should be moisture free for 24 hours prior to application for best results.** When applying on old thermoplastic scrape off any loose material. Ensure that the remaining thermoplastic surface is clean. If the old thermoplastic is oxidized (powdery surface), grind or heat it and scrape the top surface so fresh material is exposed. **Do not apply on top of paint or cold plastic.**

Material: HotTape™ shall be kept dry at all times. Avoid extreme storage temperatures. HotTape™ should be stored indoors at temperatures between 35° F. and 90° F. Packages should be stored flat and stacked a maximum of 25 high. HotTape™ should be handled with care in temperatures below 50° F, as it will be less flexible in colder weather. Shelf life is 12 months. Note: HotTape™ rolled goods will uncoil best when ambient temperature is above 55°F.

Temperature: HotTape™ can be applied at ambient and surface temperature above 32°F.

SAFETY PRECAUTIONS:

Protective clothing, consisting of leather boots, or work shoes, long pants, gloves, and either safety goggles or a face shield, and a safety vest should be worn while applying HotTape™. **Note: portland cement concrete surfaces may spall when heated with the torch; therefore safety glasses must always be worn when applying HotTape™ onto portland cement concrete surfaces.** Avoid all contact with the molten HotTape™ material and heat torch flame. If you do get molten material on your skin, flush the area immediately with plenty of water and then seek medical attention. Do not attempt to pull the molten material off of your skin.

INSTRUCTIONS FOR APPLICATION ON ASPHALT OR NON-BITUMINOUS SURFACES:

1. Clean intended application area thoroughly. All loose particles, sand, dust, etc. must be removed. Utilize a power blower or compressed air if available, otherwise sweep completely.
2. Position all connecting parts of the HotTape™ (lines, legends, or symbols) on to the pavement surface. There should be no gaps between the adjoining segments. Delineate the area to receive the HotTape™ using a chalk line, chalk or crayon. You may overlap the edges slightly. Check to ensure that proper layout and alignment is obtained before moving to step 3. Once the marking has been traced, or the area delineated, remove the marking from the pavement.
3. Prepare to pre-heat the pavement by positioning yourself with the wind at your back as you face the delineated area. This will allow the wind to move the heat over the unheated portion of the pavement while at the same time keeping the heat away from your feet. Using a Magnum Heat Torch, or similar heat source, utilize the pre-set pilot valve setting to get a blue flame with an orange or yellowish tip. Then squeeze the torch handle to achieve maximum output. Hold the torch nozzle 8 to 10 inches above the pavement. Using the torch in a circular motion pre-heat the surface to a minimum temperature of 300° F. Extend the heating 3 to 6 inches outside the pre-marked area. **Do not attempt to pre-heat an area larger than 2 feet x 4 feet at any one time.**

Properly heated, asphalt should turn a deep, solid black. **Note: concrete surfaces may spall when heated with the torch; therefore safety glasses must always be worn when applying HotTape™ onto portland cement concrete surfaces.** Use the infrared thermometer to check the surface temperature for a minimal reading of 300°F across the entire target area.

4. Once the surface temperature of the targeted area reaches 300° F immediately position the first HotTape™ segment with exposed glass beads side up. **Do not apply HotTape™ in pieces larger than 2 ft. x 4 ft. at any one time.** If using a torch similar to the Magnum, the applicator should utilize the pre-set pilot valve setting (do not squeeze the handle) to get an orange tipped flame to heat the material. **Do not operate the Magnum torch at maximum output while heating the HotTape™ material.** Hold the torch so that the torch nozzle is 6 to 8 inches over the HotTape™ material. If material is splattering with the introduction of the torch, the flame is too close to the material or the pilot valve needs to be adjusted to lower the intensity and eliminate the spattering.
5. Begin heating the HotTape™ by moving the flame from your torch slowly, but steadily over the material. The HotTape™ material must be heated to its melting temperature to achieve a bond with the pavement. **Insufficient heat will result in inadequate bonding and failure.** Overheating the material will sink the top coating of beads into the HotTape™ material and the resulting marking will be less retroreflective initially. To ensure that heat is evenly applied to the entire marking, move the torch in a sweeping motion, approximately 2 feet wide, keeping the nozzle of the torch about 6 to 8 inches above the material. **Caution: Maintain a minimum distance of 6 inches between the torch nozzle and the material. Any closer will cause superficial scorching of the material without adequate melting throughout. Note that 125 mil thick materials will require a longer heating period than 90 mil and 90 mil longer than 75 mil.** During heating, the HotTape™ should soften and begin to conform to the pavement surface to which it is applied. Additionally the material may bubble, and may change color, turning slightly darker or pale. If the material does change color move the torch to another section to avoid scorching the material. HotTape™ material will exhibit a soft, “chewing-gum” appearance when properly heated.
6. Inspect the recently applied HotTape™ to ensure that complete bonding has occurred over the entire area. After the HotTape™ has cooled to near ambient temperature, cut an area in the interior of the material with a chisel where it appears the material received the least amount of heat. For white HotTape™ this will appear the whitest in color.
 - 6.1. **If applied on asphalt:** If the material can be lifted without evidence of asphalt on the underside, insufficient heat has been applied.
 - 6.2. **If applied on portland cement concrete:** When trying to lift the recently applied HotTape™ material off of the non-bituminous surface it is unlikely that any part of the pavement will be lifted up (with the HotTape™). Adequate bonding has occurred if the HotTape™ separates and part of the HotTape™ remains stuck to the pavement.
 - 6.3. If upon inspection it has been found that insufficient heat has been applied, simply reapply heat until adequate bonding has occurred. **Note: Do not leave the project until a sufficient bond has been established.** Attempts to reheat at a later date will be unsuccessful.
7. HotTape™ is formulated with surface applied and intermixed glass beads to provide both high initial retroreflectivity and better visibility throughout its service life. HotTape™ can be supplied without pre-applied surface beads. When this happens beads must be applied to the surface during application while the material is in the molten state to provide adequate initial retroreflectivity. This is also a very important step in obtaining the required skid resistance.
8. HotTape™ will cool and set rapidly within a couple of minutes of application. If desired, setting time can be accelerated with a spray of cool water.

NOTES:

- HotTape™ is compatible with asphalt and concrete surfaces and can be applied on special surfaces, i.e., bricks and cobble stones.
- Do not allow 2 pieces of non-beaded HotTape™ to remain in direct contact with each other, as they will bond together especially in hot weather. Use the plastic separation sheets to avoid this situation.
- You can "cut and paste" with HotTape™. Use a knife to score the material and carefully break it along the score. In warm weather you can use scissors.

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