



APPLICATION INSTRUCTIONS

For PreMark® Preformed Thermoplastic Pavement Markings requiring PreMark® SP Sealer

First-time applicators should contact Flint Trading, Inc. for product support and on-site training.

IMPORTANT: Read and understand all instructions and safety information before attempting to apply material.



SURFACE APPLICATION, GENERAL REQUIREMENTS:

- Equipment:**
- Flint 2000EX™ propane heat torch, with regulator and 25 ft. of hose
 - 300/600 ml sealer dispensing gun
 - Gas Powered Blower or Broom
 - Adequate Supply of Propane
 - Crayon, Chalk Sticks and Chalk Snap Line
 - Tape Measure
 - Utility Knife, Putty Knife
 - Hammer and Chisel
 - Water sprayer (Optional)
- Moisture:** Pavement must be dry prior to applying the PreMark® SP Sealer.
- Surface:** PreMark® can be applied on asphalt, or non-bituminous portland cement concrete surfaces. Surface must be free of dirt, dust, deicing agents, chemicals and significant oily substances. Concrete surfaces must have surface porosity. To test for porosity sprinkle a few drops of water on to the surface. If the concrete does not readily absorb the water, the surface is not sufficiently porous and you should contact your Flint Trading representative for additional instructions on how to prepare the surface.
- Material:** Keep PreMark® dry at all times. Avoid extreme storage temperatures. Store indoors at temperatures between 35° F. and 90° F. Packages should be stored flat and stacked a maximum of 25 high. PreMark® should be handled with care in temperatures below 50° F, as material will be less flexible in colder weather. Shelf life is 12 months. Prior to starting the application, place all tools and materials where they are going to be needed in the application process.
- Sealer:** **PreMark® SP Sealer is required for all PreMark® multi-color markings larger than 16 sq. ft. such as interstate and state route shields made with interconnected color segments.** PreMark® SP Sealer is a 2 part epoxy sealer that is supplied in a 300/600 ml cartridge at a ratio of 2 parts A to 1 part B. A kit consists of 2 each of the 300/600 ml cartridge and will cover approximately 90 sq. ft. Shelf life for PreMark® SP Sealer is 12 months.
- Temperature:** Ambient and pavement temperature must be 45° F and rising.

SAFETY PRECAUTIONS:

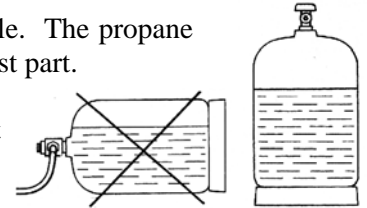
For your safety and the safety of others, read and understand all material safety data sheets before using this product. The sealer is for outdoor use only. Protective clothing consisting of leather work shoes, long pants, gloves and either safety goggles or a face shield, and a safety vest should be worn while applying PreMark®. Always wear nitrile gloves (supplied), or other non-absorbent gloves, when working with the PreMark® SP Sealer. Always point the tip of the cartridge in a direction where an accidental discharge will not contact personnel at the site. In the event of accidental skin contact with the sealer wash contaminated skin with soap and water and remove contaminated clothes immediately. Seek medical attention if irritation persists. In the event of accidental sealer contact with the eyes, immediately flush eyes with plenty of water for at least 15 minutes; remove contact lenses; call a physician. Destroy any contaminated leather.

Do not discard cartridges with unused sealer. Any unused sealer can be discharged through the mixing nozzle onto the aluminum tray provided. Cured sealer can safely be disposed of. **Dispose of all materials in accordance with all applicable federal, state and local laws and regulations.**

Do not let mixed sealer puddle as intense heat will develop during curing. Avoid all contact with the hot PreMark[®] material and Flint 2000 EX[®] heat torch flame. If you do get some 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.

The Flint 2000 EX operates on vaporized propane gas. Use the largest size cylinder possible. The propane gas cylinders must be used in the standing, upright position with the valve being the uppermost part.

Never lay the cylinder down. This will allow liquid gas to flow into the torch and is not recommended. Do not use the torch if the propane cylinder is not in the upright position.



INSTRUCTIONS FOR APPLICATION

1. Clean intended application area thoroughly. All loose particles, sand, dust, etc. must be removed. *See Figure 1.* Utilize a power blower or compressed air if available, otherwise sweep thoroughly.
2. Mark the area to receive the PreMark[®] using a chalk line, chalk or crayon. *See Figure 2.* When tracing always handle the material with care. The PreMark[®] may consist of a pattern of interconnected individual pieces of preformed thermoplastic material. If that is the case, do not lift an entire pattern segment (usually 2 ft. x 3 ft.) by holding on to a small individual piece of the pattern only. The material should be handled on the plastic sheet it is packed with until it is close to its final position. *See Figure 3.* Once the marking has been traced, or the area chalked, remove the marking from the pavement.
3. Ensure that no moisture is present prior to applying the PreMark[®] SP Sealer onto the pavement surface. Surface moisture is not often visible so you should assume that some moisture is present. Remove moisture by drying the application area with a propane fueled torch such as the Flint 2000EX[™] or Magnum Heat Torch. *See Figure 4.*
4. Remove the contents of the sealer kit from the shipping carton. Install the sealer cartridges into the sealer gun. Point the gun upwards (nose up), and remove the nose plug. *See Figure 5.* With the gun still pointing upwards, mount the mixing nozzle and ensure that it is properly secured to the sealer cartridge. *See Figure 6.* Point the gun downward and squeeze the handle gently until the sealer is approximately 2 in. from the tip of the mixing nozzle. If circumstances do not permit the mixed sealer to be used within 10 minutes remove the mixing nozzle and insert a new nose plug.
5. The amount of sealer in one 300/600 ml cartridge will be sufficient for applying 45 sq. ft. of PreMark[®] material. **Note: It is critical that the sealer does not cure up before the PreMark[®] material has been applied and heated, therefore do not apply sealer to an area larger than what can be heated in 20 minutes.** Holding the tip of the nozzle above the application area, squeeze out an appropriate amount of sealer. *See Figure 7.* Using the roller provided spread out the applied sealer over the selected application area. *See Figure 8.* Do not apply sealer outside the chalk line. The sealer should appear as a light coat of paint, leaving a shiny surface. **Do not wait for the sealer to cure up before applying the PreMark[®] material.**
6. Cold temperature considerations: PreMark[®] SP Sealer may dispense more slowly in temperatures around 45° F. When working in these temperatures we suggest the PreMark[®] SP Sealer be kept close to room temperature whenever possible.

7. Apply the PreMark[®] material with exposed bead side up immediately after the sealer has been applied, following handling procedure described in Step 2 above. Position material so that edges of adjacent sheets fit snugly together and that the pattern of the marking aligns properly from sheet to sheet. *See Figure 9.* There should be no gaps between the adjoining segments. You may overlap the edges slightly. Check to ensure that proper layout and alignment is obtained before heating the material. Heating should begin immediately after proper layout has been confirmed.
8. Prepare to heat the PreMark[®] by positioning yourself with the wind at your back as you face the marking. This will allow the wind to move the heat over the unheated portion of the material while at the same time keeping the heat away from your feet. Regularly spaced heating indicators, indents, have been manufactured into the top surface of the PreMark[®] material. The closing of these indents will provide a visual cue during application that the material has reached a molten state and proper bead embedment has been achieved. The PreMark[®] material must be heated to its melting temperature to achieve a bond with the pavement. **Insufficient heat will result in inadequate bonding and failure.**
9. Immediately after positioning the PreMark[®] begin heating the material by moving the flame from your Flint 2000EX[™] torch in a sweeping motion, approximately 2 feet wide. Heat slowly, but steadily keeping the nozzle of the torch about 4 to 8 inches above the material. *See Figure 10.* **Caution: Maintain a minimum distance of 4 inches between the torch nozzle and the material.** Any closer will cause superficial scorching of the material without adequate melting throughout.
10. Continue to heat the PreMark[®] until the heat indicators, indents, close. At this point stop the heating process. Overheating the material will sink the top coating of beads into the PreMark[®] material and the resulting marking will be less retroreflective initially. When applying multiple sections of PreMark[®], such as an interstate shield, leave the 8 in. closest to the continuation edge unheated. Do not expose areas with sealer (and no PreMark[®] material) to the flame of the torch as this will cause the sealer to cure prematurely.
11. Inspect the recently applied PreMark[®] to ensure that complete bonding has occurred over the entire area. After the material has cooled to near ambient temperature use a putty knife or chisel and attempt to remove a portion of the PreMark[®] material along an edge. Edges should be rounded and thoroughly bonded. If properly installed, the material should pull away from itself, leaving a residual film on the surface. If the material does not pull away from the surface without any material remaining on the substrate, reposition the material and reheat that portion of the marking. While trying to lift the recently applied material off of the surface adequate bonding has occurred if the PreMark[®] material separates and part of it remains stuck to the pavement. Depending upon the condition of the surface, some asphalt or concrete may also be pulled up on the underside of the PreMark[®] material. Once the bond has been verified, use the PreMark[®] SP Sealer to re-bond the piece of material you sampled back onto the surface. When applied correctly the PreMark[®] should appear as one continuous marking. All seams should be closed. There should be no gaps between adjacent colors, and no gaps between adjacent segments. Do not begin applying the next row of PreMark[®] material until a sufficient bond has been established. While material can be reheated to achieve adequate bond at the time of installation, attempts to reheat material the following day will be unsuccessful. Note: Material will not bond with the pavement until the sealer cures. Since the sealer will take longer to cure in cooler temperatures, (45°F - 55°F), you should allow for more time to elapse before checking bond (than you normally would when applying in warmer temperatures). You can apply more heat to the material to facilitate the curing of the sealer, but not beyond the point where you risk sinking all the surface treatment. Thereafter, you can check the bond at 15 minute intervals. Sealer should cure within an hour at the temperature range noted above.

12. PreMark® is formulated with surface applied and intermixed glass beads to provide both high initial retroreflectivity and better visibility throughout its service life. PreMark® 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.
13. Repeat steps 1 through 12 until the PreMark® material has been applied to the entire application area.

NOTES:

- Closed heat indicators, indents, act as a post-application visual cue that the application procedures have been followed.
- If the next PreMark® application does not take place within 10 minutes of the last use of the sealer, remove the mixing nozzle and insert a new nose plug. This should be done with the cartridge pointing downwards to remove the mixing nozzle and then immediately place the cartridge in an upright position and insert the nose plug while observing all safety instructions mentioned above. Secure the nose plug to the cartridge using the cap or retaining nut provided.
- PreMark® is compatible with asphalt and concrete surfaces and can be applied on special surfaces, i.e., bricks and cobble stones.
- If PreMark® is applied over joints (saw cut control joints, isolation/expansion joints, cold/ construction joints), make a deep score in the material once it has set up but not entirely cooled down.
- Oil impervious PreMark® can be applied immediately after completion of daily paving operations. PreMark® can be applied to concrete as soon as it has set up (green concrete).
- You can "cut and paste" with PreMark®. Use a knife to score the material and carefully break it along the score. In warm weather you can use scissors.
- Do not allow 2 pieces of PreMark® 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.
- Dispose of all materials in accordance with all applicable federal, state and local laws and regulations.
- Don't throw or drop PreMark® in lower temperatures, as it will be less flexible in colder weather.
- During application propane tanks will begin to freeze up as the supply of propane decreases. This will lower the gas pressure reaching your torch, creating less heat. Cold weather will accelerate this process. Use 40 lb. tank and have a spare on hand.

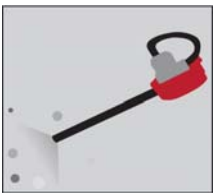


Figure 1:
Clean Surface

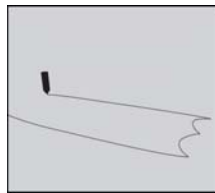


Figure 2:
Mark Area



Figure 3:
Handling Material

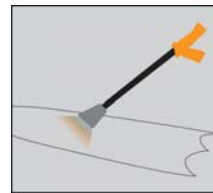


Figure 4:
Remove Moisture



Figure 5:
Remove nose plug



Figure 6:
Attach Nozzle

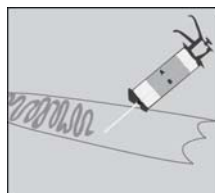


Figure 7:
Apply Sealer

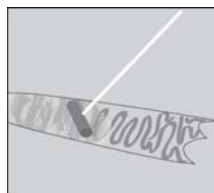


Figure 8:
Roll Sealer

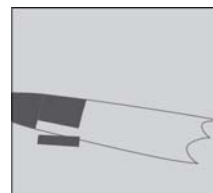


Figure 9:
Layout Material



Figure 10:
Heat Material

PreMark® has a patented visible indent system, US Pat 5,861,206

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