

EPOXY-XMARK

Two Component, Low-modulus, Colored Epoxy Adhesive and Binder for Road Demarcation

CSI Div. 03

03 01 00 Maintenance of Concrete
 32 01 26.74 Concrete Overlays

Product Description:

EPOXY-XMARK is a two component, low-modulus, colored epoxy adhesive and binder for bonding colored broadcast overlays onto roads, crossing zones, asphalt and PCCP (Portland Cement Concrete Pavement).

Typical Applications:

- Colored bus lanes
- Colored bicycle lanes, bike paths, and bike parking areas
- Railroad crossings
- School zones and pedestrian crossings areas

Advantages:

- Fast-curing formula reduces the time needed for crossing closures, road blocks, and detours
- Easy to mix - 1:1 ratio
- No primer required
- Excellent bond strength
- Superior compressive strength
- Zero VOCs

Complies With:

- ASTM C881 and AASHTO M235
 - Type III (bonding skid-resistant materials to hardened concrete and as a binder in epoxy mortars)
 - Grade 1 (low viscosity)
 - Class B (application temperature from 40°F to 60°F)
 - Class C (application temperature from 60°F to manufacturer's stated limit)
- VOCs (meets requirements in all US States)

Note: Demarcation codes and regulations will vary between cities, counties, states, and federal divisions. Always verify that EPOXY-XMARK (and the selected colored aggregate) meet the specified project requirements.

Site Mock-up:

Aquafin recommends installation of a small field sample of min. 10 ft² (0.9 m²) at the project site or other pre-selected area as agreed to by owner's representative and applicator.

- Apply all materials to field sample area in the correct sequence. Follow all manufacturer's written instructions.
- Maintain field sample during construction for workmanship comparison. Use field sample as standard for judging color and texture on remainder of project. Do not alter, move, or destroy field sample until work is completed and approved by owner's representative.

Physical and Technical Data	
Mixing Ratio:	1 part A:1 part B
Viscosity @ 77°F (25°C):	1700 cps
Gel Time (60 g mass):	20 minutes
Tack Free Time @ 77°F (25°C):	3-5 hours
Recoat Time, ASTM D1640:	3 hours
Initial Cure Time @ 80°F (27°C): @ 75°F (24°C): @ 70°F (21°C): @ 65°F (18°C): @ 60°F (15°C):	2.5 hours 3 hours 4 hours 5 hours 6 hours
Compressive Strength, ASTM C579 @ 2 hours: @ 24 hours: @ 7 days:	1,500 psi (10 MPa) 5,000 psi (34 MPa) 5,200 psi (35 MPa)
Compressive Strength, ASTM D695 @ 7 days:	5,000 psi (35 MPa)
Compressive Modulus, ASTM D695 @ 7 days:	110,000 psi (758 MPa)
Tensile Strength, ASTM D638:	2,800 psi (19 MPa)
Tensile Strength, ASTM C307:	2,900 psi (20 MPa)
Tensile Elongation, ASTM D638:	40%
Tensile Elongation, ASTM C307:	<1%
Bond Strength to Concrete, ASTM C1583:	300 psi (2 MPa)
Slant Shear, ASTM C882 @ 2 days: @ 7 days:	2,000 psi (14 MPa) 2,800 psi (19 MPa)
Flexural Strength, ASTM D790:	3,000 psi (21 MPa)
Shrinkage on Cure, ASTM D2566:	0.2%
Water Absorption, ASTM D570 @ 24 hours:	0.2%
Chloride Ion Permeability, AASHTO T277:	0.0 Coulomb
Thermal Compatibility, ASTM C884:	Pass
VOCs:	0 g/L
All data are average values obtained under laboratory conditions. In practical use temperature, humidity and absorbance of the substrate may influence the above given values. Dynamic coefficient of friction values will vary depending on final surface texture achieved at the jobsite.	

EPOXY-XMARK

Substrate Preparation:

- All surfaces must be dry, clean and free from loose sand, dirt, laitance, curing compounds, sealers, paint, road markings, existing coatings, oil, grease, and other substances that could interfere with adhesion.
- **ASPHALT: Overlays using EPOXY-XMARK are not a replacement for repairing damaged, deteriorated, or cracked areas of asphalt pavement. Widespread deterioration will require repaving prior to the application of EPOXY-XMARK.**
 - Asphalt must be at least 30 days old.
 - Repair all areas of damage, deterioration, weakness, and potholes, using suitable, high-quality materials approved for asphalt repair. Replace all temporary surface patches with full-depth or deep patches. All repair areas must be rectangular in shape, and have saw cut straight edges. Follow MS-16 Asphalt in Pavement Preservation and Maintenance methods and procedures.
 - Fill cracks with high-quality materials designed for asphalt crack repair in DOT applications.
 - Prepare asphalt surfaces and remove markings by shot-blasting or high pressure water blasting according to agency specifications. Allow to dry.
 - Immediately before application, clean dry asphalt surfaces by high-pressure air blasting using oil-free compressed air.
- **CONCRETE: Overlays using EPOXY-XMARK are not a replacement for repairing damaged, deteriorated, or cracked, concrete pavement or concrete structures.**
 - Concrete must be at least 30 days old, and must have reached a minimum 3,000 psi (20 MPa) compressive strength.
 - Repair all areas of spalling, delamination, damage, deterioration, potholes, and cracks using a suitable concrete repair product such as MORTAR-40 CI. All repair areas must have saw cut straight edges with a minimum 3/8" (10 mm) depth as per ICRI Guideline 310.1R-2008.
 - Fill cracks with high-quality materials designed for concrete crack repair in DOT applications.
 - Mechanically prepare concrete surfaces to achieve a minimum CSP (concrete surface profile) of 4 as per ICRI Guideline No. 310.2R-13, Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair.
 - Use high pressure water blasting to remove all debris. Allow to dry.
 - Immediately before application, clean dry concrete surfaces by high-pressure air blasting using oil-free compressed air.

Mixing:

- Epoxy resins are temperature sensitive and care should be taken to condition all components to between 65°F to 85°F (18°C to 29°C) for a minimum of 24 hrs. prior to mixing and placement.
 - Use chemical resistant gloves and goggles when mixing EPOXY-XMARK.
1. Do not alter mixing ratios. The volume mixing ratio is 1 part component A to 1 part component B (1A:1B).
 2. Pre-mix the "A" and "B" components of EPOXY-XMARK individually to ensure all raw materials are dispersed uniformly. Then accurately measure out each part by volume before combining together.
 3. Combine A and B components of EPOXY-XMARK, and mix to a uniform consistency (approx. 3 - 5 minutes) using a slow speed drill (approx. 300 to 450 rpm) with a jiffy mixing blade. Occasionally scrape the bottom and sides of the container while mixing. Avoid entrapping air. Do not mix in an up and down motion.

Once mixed, apply immediately!

Colored Aggregate Selection for Road Demarcation:

Certain types, shapes, sizes, and colors of aggregate may be required in order to comply with codes and regulations for road and crossing zone demarcation projects. Always verify aggregate choice with administering agency/project owner before beginning project. All aggregate used with EPOXY-XMARK must be clean, washed, dry and bagged.

Application:

Read all instructions thoroughly prior to installation.

- Air and substrate temperatures must be between 50°F to 95°F (10°C to 35°C). Temperatures must be maintained in this range for at least 8 hours after the application.
- Dew Point must be 5°F (3°F) or more below the surface temperature.
- Do not apply if humidity is at or above 95%.
- **Colored Overlays Applied by Hand for Single Course Application:** After mixing, immediately pour EPOXY-XMARK onto the asphalt or concrete in ribbons. Distribute and spread material evenly using a 3/16" to 1/4" V-notched rubber squeegee at a rate of 40 sq. ft. per gallon. Immediately, broadcast clean, dry aggregate until refusal (approx. 10 lbs of aggregate per sq. yd.). Allow to cure. Remove excess aggregate.

Protection:

Protect areas from pedestrian traffic for at least 48 hours. [based on 75°F (24°C)]. Protect areas from vehicle traffic for at least 72 hours [based on 75°F (24°C)].

Clean-up:

Clean tools and equipment with acetone or similar product immediately after use. Cured material must be removed mechanically. Soaking tools in an epoxy-stripper will help when mechanical removal is necessary.

Limitations:

- Do not mix more material than can be used within 15 minutes [based on 77°F (25°C) and 50% RH].
- Do not thin with solvents, or dilute in any manner.
- Do not apply EPOXY-XMARK over magnesium phosphate cement concrete.
- High temperatures, high humidity, large batches, and thicker applications will significantly reduce the working time and cure time. Lower temperatures and/or low humidity will extend the cure time.
- Contact Aquafin Technical Department or your local Aquafin Representative for guidance in conditions outside the stated temperature limits.
- Once containers have been opened, use material as soon as possible.
- Color may vary due to batch to batch variation, always "box" different batches to avoid it.

Note:

Proper application is the responsibility of the user. Field visits by AQUAFIN personnel are for the purpose of making technical recommendations and not for supervising or providing quality control on-site.

Packaging:

- 10-gallon unit
 - Component A: (1) 5-gallon pail
 - Component B: (1) 5-gallon pail

NOTE: Aggregate is not included in kits.

EPOXY-XMARK

Colors:

- EPOXY-XMARK is available in 4 factory blended colors: Bus Lane Red, Bicycle Lane Green, Railroad Crossing Yellow, and Pedestrian Crossing White.

Note: If a clear color is desired, use EPOXY-XP50.

Shelf Life & Storage:

- 2 years in unopened, original packaging when stored at temperatures between 40°F to 90°F (4°C to 32°C).
- Keep containers closed, store in a dry, cool place away from heat, direct sun, and moisture.
- Protect material from freezing.

Safety:

Refer to SDS. For commercial use only. Avoid contact with skin and eyes. Wear rubber gloves and safety goggles during mixing and application. After contact with skin, wash with plenty of water. In case of eye contact, rinse immediately with plenty of water for 15 minutes and seek medical advice. KEEP OUT OF REACH OF CHILDREN.

LIMITED WARRANTY: AQUAFIN, INC. warrants this product for a period of one year from the date of installation to be manufactured free of defects and to be consistent with its technical properties as stated in our current Technical Data Sheet. This product must be used as directed and within its stated shelf life. AQUAFIN INC. will replace or at our discretion refund the purchase price of any product, excluding cost of labor, which is proven to be defective. Our product recommendations are based on industry standards and testing procedures. It is the buyer's obligation to test the suitability of the product for an intended use prior to using it. We assume no warranties written, expressed or implied as to any specific methods of application or use of the product. AQUAFIN INC. MAKES NO WARRANTY AS TO MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE AND THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED. AQUAFIN, INC. shall not be liable for damages of any sort including remote or consequential damages, down time, or delay. Any claim for a defective product must be filed within 30 days of discovery of a problem, and must be submitted with written proof of purchase.

For Professional Use Only.

EPOXY-XMARK is available in the following standard factory blended colors:



BUS LANE RED



BICYCLE LANE GREEN



RAILROAD CROSSING YELLOW

PEDESTRIAN CROSSING WHITE

Color Chart is a representation of the actual color only. Every effort has been made to reproduce these color samples as faithfully as possible. Color variations between batches may exist. Colors may vary due to differences in surface texture, lighting, and methods of application. When ordering additional units, make sure you request the same batch number. You will find the batch number on the product label. Not all colors are readily available. Some colors might require a minimum order quantity. Contact Aquafin with questions regarding colors prior to ordering any materials or starting a project.

EPOXY-XMARK - Coverage Rates			
	Volume of EPOXY-XMARK Required per 100 sq. ft.	Coverage Rate in sq. ft. per gallon	Approx. Weight of Colored Aggregate Required in lbs. per sq. yd.
Single Course Application By Hand: Layer/Course 1:	2.5 gal	40 ft ² per gal	10 lbs/yd ² (5 kg/m ²)
Notes: Application rates and yield values are approximate. Actual coverage may vary due to texture and absorption of substrate. When EPOXY-XMARK is applied beyond the recommended application rates, product performance will be reduced.			