

MARK-174

Polymer Road Non-Skid Overlay

Please use this Technical Data Sheet (TDS) in conjunction with this product's country-specific Safety Data Sheet (SDS) and the Safe Use conditions as described therein. Current Safety Data Sheets can be requested from Olin POLY-CARB at customerservice@poly-carb.com.

Description **100% solids two part hybridized co-polymer for skid resistance and waterproofing.**

Introduction **MARK-174** is designed to as an overlay system to be placed on roadways between 1/8" and 3/8" thick. The product is designed to accommodate movement of the structure due to heavy traffic and extreme changes in weather conditions.

Typical Applications Asphalt and Concrete roadways, as well as bridge and parking decks. High accident roadways, highway entrance and exit ramps, toll booths, and, snowmobile crossings, and other weather exposed concrete structures requiring skid resistance and waterproofing.

Typical Properties **Properties of MARK-174 Part A and Part B**

	<u>PART A</u>	<u>PART B</u>
Color	Amber	Amber
Mixing Ratio	1 volume	1 volume
Percent Solid	100%	100%
Shelf Life	2 year	2 year

Properties of MARK-174 Mixed Part A and Part B

Color	Amber	
Viscosity	10 Poise	ASTM D-2196
Gel Time 25°C (75° ± 2°F)	~20 minutes	ASTM C-881
Adhesion to Concrete	100% Failure	ACI 503
Shore D Hardness	>60	ASTM D-2240
Compressive Yield Strength	-3 hrs; >2500 psi -24 hrs; >5000 psi	ASTM C-109/C-579
Tensile Strength	>2500 psi	AASHTO M 235
Tensile Elongation	>40 %	AASHTO M 235
Water Absorption - Max.	<.50%	AASHTO M 235
Abrasion Resistance - Wear Index CS-17 Wheel,1000 cycle,1000 gms	< 100 milligrams	ASTM C-501
Thermal Compatibility	No Delamination	ASTM C-884
28-day Max. Chloride Perm.	Passes	AASHTO T-237

Selection of Aggregate

Choice of aggregates would depend on the wear and skid resistance qualities required as well as project specifications. For other recommendations, contact **POLY-CARB** directly.

METHOD OF APPLICATION

MATERIAL CONTAINERS ARE RECOMMENDED TO BE STORED IN A TEMPERATURE RANGE OF 75°F TO 85°F (24°C TO 30°C) FOR AT LEAST 24 HOURS PRIOR TO USAGE TO ENSURE PROPER MIXING AND APPLICATION PROPERTIES.

Surface Preparation: The entire deck or concrete surface in question must be sounded for subsurface delaminations. The delaminated areas are marked and repaired.

Concrete: The entire deck shall be shot blasted to remove the contaminated concrete as well as any weak surface layer in the case of newly placed concrete. Sandblasting can be used as an alternative to shot blasting although the sandblasting method **DOES NOT** provide a uniform and dust-free surface. Therefore, sandblasting should only be used where the shot blasting method is not practical or possible.

Asphalt—The entire area must be power washed with a minimum pressure of 20.7 MPa (3,000 psi) to remove all dirt, grime, and loose contaminants at least 24 hours prior to application of **MARK-174**.

Repair of Cracks: If excessive cracks are observed on concrete decks, then it is recommended that POLY-CARB's **MARK-127, MARK 135 SAFE-T-SEAL or MARK 155 ELSR Epoxy Sealer** be used just prior to installation of the overlay.

Repair of Spalled Areas: All weak and spalled concrete areas shall be marked and a one to two inch saw cut shall be made prior to jack hammering the non-structural concrete. Care should be taken not to slice or cut the steel rebar while saw cutting the marked area. These areas shall be sandblasted followed by an air blast to remove any loose dust.

Do not use patching materials containing magnesium phosphate due to the incompatibility between the **MARK-174** and the magnesium phosphate concrete. It is recommended to seal around patches with a gravity fed resin to ensure the patches are completely enclosed and bonded.

Application Of Mark-174

MARK-174 is best applied on all areas using metering, mixing, and distribution machinery approved by your POLY-CARB representative. The application machine shall feature positive displacement volumetric metering pumps. The resin shall be stored in temperature controlled reservoirs and maintaining 37.8°C ± 4°C (100°F ± 10°F) to insure optimum mixing. In line mixing shall be motionless so as to not overly shear the material. Heating shall be throughout the entire equipment to ensure proper mixing (pump to tip of application gun).

Mixing: For manual application, mix one volume of Part A with one volume of Part B (1A:1B) in a clean, dry metal container. A (1/2 inch) high torque slow speed drill (300 R.P.M. max.) with a jiffy mixer is recommended. Take care to not entrap air in the system during mixing. Minimum three to four minutes of thorough mixing is recommended.

The mixed material should be transferred into another clean and dry container to carry to the job. The remainder in the original container should be scraped out and transferred into the fresh batch. This process reduces chances of transferring small pockets of unmixed material on the surface.

Application: Use the following steps for application of mixed material and aggregate.

1. Spread the mixed material on the surface using squeegees covering (35-40 sqft/gallon

in the first of two coats.

2. The aggregate shall be broadcasted at a rate of (12-15 lbs/sqyd) into the freshly placed co-polymer material within approximate time limits under the existing temperature conditions as described below in No. 6. For best results, the aggregate shall be broadcast by truck mounted pneumatic or mechanical equipment capable of dispensing the aggregate onto the surface in a uniform manner as to not disturb the placement of the material or as directed by your POLY-CARB representative. The entire liquid surface shall be covered completely (to saturation) with the aggregate.
3. Once this first layer obtains the initial set, excess aggregate must be removed. A compressor, high-powered vacuum or sweeper may be used for aggregate cleanup.
4. The second layer of **MARK-174** shall be applied at a rate of (15-20 sqft /gal.), followed by the broadcasting of aggregate at a rate of (12-15 lbs/sqyd), until saturation
5. For high friction applications, a single layer of the material shall be applied via squeegees at a rate of 25-32 sqft/gal. Aggregate shall be applied at a rate of 12-15 lbs/sqyd and until saturation. A second layer may be required for open grade asphalt applications.
6. The maximum time allowed between epoxy application and broadcast of aggregate at temperature of:
 - a. 90°F (32°C) 10 minutes
 - b. 80°F (27°C) 15 minutes
 - c. 70°F (21°C) 20 minutes
 - d. 60°F (16°C) 25 minutes
 - e. 50°F (10°C) 35 minutes
7. The minimum working temperature required for proper curing: 5°C (40°F); maximum working temperature required for proper curing with aggregate retention: 43°C (110°F).
NOTE: *Anything below or above these temperatures must have written permission and installation instructions from Olin POLY-CARB to ensure proper installation.*

NOTE: *Any exceptions to the above-specified procedure must have the approval of Olin POLY-CARB.*

Coverage

- **Liquid****

1st layer	(30-40 sqft/gallon)
2nd layer	(15-20 sqft/gallon)
- ** *The coverage rate is a good first estimate. This presupposes a flat deck, the specified aggregate, and a temperature of 80°F. A grooved deck or colder temperatures may require more material.*
- **Aggregate**

1st application	(12-15 lbs./sqyd)
2nd application	(12-15 lbs/sqyd)

Packaging

MARK-174

- Liquid
946.3ℓ (250 gallon) tote
189.2ℓ (50 gallon) container
18.9ℓ (5 gallon) container
 - Aggregate
Bulk
- Combined:
1892.5ℓ (500 gallons) unit
378.5ℓ (100 gallon) unit
37.8ℓ (10 gallon) unit
- 1360.8 kg (3,000 lbs)/bag

Clean Up

Cleaning of all equipment and tools is recommended before the gel time of the system expires. **MARK-305** is specially designed for this purpose. A lacquer solvent or xylol can also be used for the same purpose.

Limitations

- Should not be used over magnesium phosphate patching material.
- Use washed and dried aggregate only.
- At the time of application, the substrate and air temperature should be at least 5°C(40°F) and expected to rise to 10°C(50°F) or above.
- Do not thin **MARK-174** with any solvent as this will prevent proper curing.
- Excessive moisture on the surface at time of application can interfere with proper bonding due to vapor pressure.

Contact information:

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