



REMR MATERIAL DATA SHEET CM-OL-1.1
 CONCRETE OVERLAY: MARK-163 (FLEXOGRID)

1. NAME

Mark-163 (FlexoGrid)

2. MANUFACTURER

Poly-Carb
 33095 Bainbridge Rd
 Cleveland, OH 44139
 Telephone: 216-248-1223

3. DESCRIPTION

Combination of epoxy and urethane.

4. USES & LIMITATIONS

Uses: The Mark-163 (FlexoGrid) Overlay System is designed to be placed as an overlay over an entire deck. Minimum thickness should be 1/4 in. Prior to placement of the overlay, the spalled areas should be permanently repaired with the specially designed Mark-163 (FlexoGrid) Patching System. The Mark-163 (FlexoGrid) Overlay System is designed to accommodate hair-line cracks and slight movements of the concrete structure caused by heavy traffic and extreme changes in weather conditions. Flexibility in the Mark-163 (FlexoGrid) Overlay molecule is produced by interaction of urethane elastomer; thus its flexibility is not greatly affected by normal summer and winter temperature changes.

Limitations: The manufacturer's literature lists the following product limitations:

- Should not be used over magnesium phosphate-type patching material.
- Only washed and dried aggregate should be used.
- At the time of application, the substrate and air temperature should not be below 50° F for regular-temperature applications and 25° F for low-temperature applications.
- The epoxy should not be thinned with any solvent as this will prevent proper curing.
- Excessive moisture on the concrete surface at time of application can interfere with proper bonding because of vapor pressure.

5. MANUFACTURER'S TECHNICAL DATA

Properties of Part A and Part B:

	<u>Part A</u>	<u>Part B</u>
Color	Amber	Amber
Mixing ratio	2 volumes	1 volume
Percent solid	100%	100%
Shelf life	2 years	2 years

Packaging:

Liquid

50-gal containers	150-gal unit
5-gal containers	15-gal unit

Aggregate

Mark-361 (100-lb bags)	20 bags/pallet
Mark-371 (100-lb bags)	20 bags/pallet

Properties of mixed Part A and Part B (Overlay):

	<u>Regular Temperature</u>	<u>Low Temperature</u>
Color	Amber	Amber
Pot life, 25° C (75° ± 2° F, 100 g)	35-40 min	8-10 min
Pot life, 25° C (75° ± 2° F, 100 g) (with aggregate)	1.5 hr	25-30 min
Initial set, 25° C (75° ± 2° F)	6 hr	30-40 min
Initial cure, 25° C (75° ± 2° F)	12 hr	2-3 hr
Final cure, 25° C (75° ± 2° F)	48 hr-7 days	24 hr

Properties of cured Mark-163 (FlexoGrid) Overlay:

Adhesion to concrete	100% failure in concrete	ACI 503R-29
Shore D hardness	55-75	ASTM D 2240-75
Compressive strength	7,000-9,000 psi	ASTM C 109
Tensile strength	2,700	ASTM D 638-82
Tensile elongation	35-45%	
Tensile modulus	70,000-80,000 psi	
Water absorption	0.3-0.5%	ASTM C 413
Abrasion resistance - water index CS-17 wheel, 1,000 cycles, 1,000 g	47-70 g	ASTM C 501

6. MANUFACTURER'S GUIDANCE FOR APPLICATION

Surface preparation: The entire deck or concrete surface must be sounded for subsurface delaminations. The delaminated area should be marked and repaired by injection into the subsurface with Poly-Carb's Injection System. All delaminated surface area should be cut and patched.

The entire deck shall be sandblasted to remove the contaminated concrete as well as any weak surface layer in the case of newly placed concrete. A minimum of 1/16 in. of the existing concrete surface should be removed. Blastrac can be used as an alternative to sandblasting as it provides a more uniform and dust-free surface.

Mixing: Two volumes of component A should be mixed with one volume of component B in a clean, dry metal container. A slow-motion mixing device that will not entrap air in the

system is recommended. Three to four minutes of thorough mixing is recommended.

The mixed material should be transferred into another clean, dry container for carrying to the job. The remainder in the original should be scraped out and transferred into the fresh batch. This cleaned container can then be used to carry the mixed material of the next batch. This process eliminates any chances of transferring small pockets of unmixed material on the concrete deck.

Application: The mixed material should be spread on the deck using squeegees covering only 40 sq ft/gal. It is recommended that the area shall be premarked to guide the use of mixed material providing recommended coverage. The aggregate is then broadcast at a rate of 10 lb/sq yd on the freshly placed epoxy system within approximate time limits under the existing temperature conditions as described below. A garden fertilizer spreader

may be used for spreading the aggregate. A lateral type unit is preferred to a circular spreader. The entire epoxy surface shall be covered completely with the aggregate, and then a slightly excess amount of aggregate should be applied across the entire deck surface. The applied aggregate shall be uniformly compacted with a lightweight, hand-driven roller. Once this coat obtains the initial set, the excess aggregate must be removed. A high-powered vacuum might be convenient for this purpose. The second application of mixed parts A and B Overlay System shall be applied at a rate of 30 sq ft/gal, followed by the broadcasting of aggregate at a rate of 14 lb/sq yd.

Coverage: For the FlexoGrid overlay, coverage shall be as follows:

Liquid

1st application: 40 sq ft/gal
2nd application: 30 sq ft/gal

Aggregate

1st application: 10 lb/sq yd
2nd application: 14 lb/sq yd

7. CORPS OF ENGINEERS' EVALUATION

Physical and mechanical properties:

Percent solid

(ASTM D 1644, Method A): 95.5%

Percent moisture absorption

(ambient temperature) (ASTM C 642-82):

1 day	0.13%
2 day	0.21%
4 day	0.32%
7 day	0.42%

Ratio of percent moisture absorption for treated to nontreated specimen

(2-day submersion): 4.5%

Percent vapor transmittance:

2 day	0.07%
4 day	0.13%
7 day	0.21%

Ratio of percent vapor transmittance for treated to nontreated specimen

(2-day diffusion): 4.4%

8. ENVIRONMENTAL CONSIDERATIONS

Reasonable caution should guide the preparation, repair, and cleanup phases of concrete overlay activities involving potentially hazardous and toxic chemical substances. Manufacturer's recommendations to protect occupational health and environmental quality should be carefully followed. Material safety data sheets should be obtained from the manufacturers of such materials. In cases where the effects of a chemical substance on occupational health or environmental quality are unknown, chemical substances should be treated as potentially hazardous toxic materials.

9. AVAILABILITY & COST

Information concerning the availability and cost of Mark-163 can be obtained by writing to the manufacturer at the address given in item 2 or calling 216-248-1223.

10. TECHNICAL SERVICE

Information technical service can be obtained by writing the manufacturer at the address given in item 2 or calling 216-248-1223.