



**100% SOLIDS EPOXY FOR CORROSION PROTECTION**

**Applied with PERMACAST® mortars to produce a structural composite. Alone it creates an impermeable liquid and vapor barrier.**

Cor+Gard® 301 is a two-component 100% solids epoxy especially formulated for use in sewer systems. It is gray or light green in color for enhanced visibility and may be applied robotically from the PERMACAST® patented SpinCaster™ for uniform distribution over the entire interior surface of manholes, pipe, and similar structures without requiring entry. Cor+Gard® 301 application produces a smooth, glossy and homogenous protective layer that is impervious to water, oils and most chemicals. It is engineered for very acidic sewers.

**TECHNICAL DATA**

Compressive Strength	ASTM D-695	18,500 psi
Flexural Strength	ASTM D-790	13,000 psi
Flexural Modulus	ASTM D-790	880,000 psi
Tensile Strength	ASTM D-638	9,000+ psi
Hardness	ASTM D-2240	88+ Shore D
Heat Distortion	ASTM D-648	150° F
Ultimate Elongation	ASTM D-638	1-5%
Adhesive Shear	ASTM C-882	3,500+ psi
Tabor Abrasion, CS17 Wheel	ASTM D-4060	<110 mg loss
Water Vapor Transmission	ASTM D-1653 B	3.6 g/sq. m. per 24 hrs.
Gel Time (60g, mass):	ASTM C881	Approx. 15 min. @ 75° F
Mixing Ratio	3:1	
Viscosity	25,000 cps @75°F	
Dry time	2-4 hours @ 75°	
Recoat	4-6 hours	

**CHARACTERISTICS**

Coverage	25 sq. ft./gal. @ .065-inch thickness
Number of coats	One or as needed
Color	Gray, Light green or white
Finish	Glossy
Clean up	Xylol, Toluol or Lacquer thinner
Packaging	5 gal. pails (20-gallon kit), three pails A & one pail B; 55-gal. drums (220-gallon kit), three drums A & one drum B

The Physical properties contained herein were obtained under laboratory conditions at 75° F. Physical properties obtained under field conditions may vary do to environmental variables. Data are subject to reasonable deviation.

**EQUIPMENT**

Epoxy pump, mixer and applicator shall be manufactured by PERMAFORM® with adapters and heated hoses as may be required for low temperature application. The impeller shall be fitted to the bi-directional PERMACAST® robotic applicator for uniform airless spraying. Plural component spray equipment or rollers and brushes may also be used.

**MIXING**

Part A and Part B shall be thoroughly mixed in a ratio of 3:1 just prior to entering the robotic applicator. Pumping pressure and temperatures shall be regulated to ensure proportional mixing and even flows to the epoxy impeller. Both parts shall be maintained at temperatures between 75 and 100° F.

## PREPARATION

All concrete, block and masonry surfaces to be rehabilitated shall be cleaned prior to applying any lining system. All grease, oil, laitance, coatings, loose bricks, mortar, unsound brick or concrete and other foreign materials shall be completely removed. Metal surfaces shall be wet or dry sandblasted. All surfaces on which these methods are used shall be thoroughly rinsed, scrubbed, and neutralized to remove cleaning agents and their reactant products. A debris blanket shall be placed at the bottom of the manhole prior to beginning the cleaning process in order to prevent any solids from entering flows. Debris resulting from cleaning shall be removed from the manhole and shall not be allowed to be carried downstream.

All leaks shall be stopped with plug material or chemical grout. All voids shall be filled and struck even using a patch material. All products shall be certified by the epoxy manufacturer as to its suitability for use with the epoxy coating. Once leaks have been stopped and voids have been filled, all surfaces not reinforced and sealed with PERMACAST® mortar, shall be primed with B4 primer to seal pores and strengthen the surface for epoxy lining.

If more than 24 hours has elapsed before the COR+GARD® 301 application can commence, the PERMACAST® mortar or the primed substrate shall be neutralized with a rinse solution of water to remove any contamination.

## APPLICATION

As a structural composite, COR+GARD® 301 may be applied by spray or SpinCaster™ directly over the structural mortar liner after 24 hours of curing at 75° F. As a corrosion barrier, the COR+GARD® 301 may be applied directly over the primed surface as soon as the primer is tacky or dry to the touch.

Ambient temperatures should be above 40° F. Cold surfaces will delay the set time even though curing continues. Applying at temperatures below 40° F is not recommended. Care shall be exercised to ensure a thorough and uniform application at the specified minimum thickness.

## DESIGN THICKNESS

As an impermeable vapor and liquid corrosion barrier the COR+GARD® 301 epoxy shall be applied to a minimum thickness of 65 mils (.065 inches) or as directed by the engineer. As a lining to reinforce and seal an existing structure, the engineer shall determine the thickness with consideration for depth, diameter, ground water pressure, traffic loading and condition.

## QUALITY ASSURANCE & TESTING

All work shall be performed by factory certified applicators. Thickness readings may be verified with a wet gage at any random point of the newly coated surface. Any area found to be less than the minimum coating thickness shall immediately receive additional material and be retested. Visual inspection shall verify a smooth, glossy finish. When completely cured, the entire coated interior shall be tested at the prescribed voltage with a holiday detector for pinholes and voids in the presence of the owner's inspector. Any defects shall be marked and recoated.

## SAFETY

Personnel entry is not required to apply COR+GARD® 301 epoxy from the PERMACAST® robotic applicator. If personnel entry is necessary for any reason, OSHA standards for confined space entry shall be strictly observed. Proper protective clothing and breathing apparatus shall be used to prevent direct contact with the liquid components or epoxy. Manufacturer's material safety data sheets shall be kept on site and the applicator shall ensure familiarization with this information and emergency procedures.

## WARRANTY and DISCLAIMER

The technical data herein provided is compiled from laboratory specimens in accordance with ASTM Standards. Test results from specimens made in the field may vary. Although this data is believed to be reliable, AP/M PERMAFORM makes no warranty express or implied, and further disclaims any liability as to the suitability of this information to a particular end use. This product is intended for use solely by our certified applicators.

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