



PERMACAST® PL-12,000



INVERT-BASE REPLACEMENT

Ultra high strength, abrasion resistant mortar designed for replacement of damaged inverts in buried concrete and corrugated steel storm pipe.

It is the intent of this product to provide for the structural refurbishment and abrasion resistance of damaged inverts of buried storm pipe by the safe, quick and economical application of a high-strength, rapid setting factory-blended, construction grout that easily flows into voids, under and around damaged or missing inverts and sets rapidly in place to form a new invert.

PHYSICAL PROPERTIES

Color	Gray
Special Handling	None-keep dry
Shelf Life	One year
Water Demand	96-104 fl. oz./bag
Coverage	50# bag yields .42 cu. ft.
Working Time	30 minutes

NOMINAL VALUES

Set Time 70°F ASTM C-266	
Initial Set	Approx. 75 minutes
Final Set	Approx. 100 minutes
Compressive Strength ASTM C-109	
24 hours	6,000 psi
28 days	12,000 psi
Flexural Strength ASTM C-293	
24 hours	1050 psi
28 days	1,200 psi
Slant Shear Bond ASTM C-882	
28 days	2,420 psi
Tensile Strength ASTM C-496	700 psi
Modulus of Elasticity ASTM C-469	
28 days 6-inch cylinders	3.48 X 10 ⁶ psi
28 days 3-inch cylinders	6.47 X 10 ⁶ psi
Freeze Thaw ASTM C-666	300 Cycle Pass
Freeze Thaw Chloride Solution	300 Cycle <1%
Sulfate Resistance ASTM C-267	No damage
5% Solution H ₂ SO ₄	30 days

The Physical properties contained herein were obtained under laboratory conditions at 72° F. Physical properties obtained under field conditions may vary do to environmental variables. Data are subject to reasonable deviation.

GENERAL

This information establishes the minimum standard for material and method of application for restoring and sealing leaking and deteriorated inverts in storm pipe by pumping and shaping the construction grout, PERMACAST® PL-12,000, into the prepared invert and voids in one application.

MATERIAL

The material, PERMACAST® PL-12,000, is an ultra high strength, high build, abrasion resistant and corrosion resistant mortar, based on advanced cements and additives. When mixed with the appropriate amount of water, a self consolidating free flowing material will develop with high 24-hour compressive strength and adhesion.

The hardened material is dense and highly impermeable. The above performance is achieved by a complex formulation of mineral, organic and densifying agents and sophisticated chemical admixtures including rust inhibitors. Graded quartz sands are used to enhance particle packing and further improve the fluidity and hardened density. The composition also possesses excellent thin-section toughness, high modulus of elasticity and self-bonding.

The water content may be adjusted to achieve consistencies ranging from free flowing to plastic. Despite its workability, the mortar has good wet adhesion.

EQUIPMENT

Mortar mixers, compressors and pumps are standard commercial models. Please contact AP/M for equipment specifications. The high speed, rotating applicator device is provided with the material to certified applicators.

MIXING

Combine 50 pounds of the packaged dry mix with 6-6.5 pints of clean (50°-70°F) water while mixing with a high-speed shear mixer until proper consistency is obtained. Continue to agitate the mortar to prevent thickening

beyond the desired fluidity. The working time is approximately 30 minutes depending upon conditions.

PREPARATION

Pressure wash the interior surface with a high-pressure, water-blast sufficient to remove all loose material and debris. Plug active leaks.

APPLICATION

Position the material hose at the far end of the deteriorated pipe and commence pumping the specially designed liner. As the mortar fills the invert void, retrieve the hose backward to the entry end. The mortar is shaped to conform generally to the radius of the original invert although it may be flat without significantly impacting the flow characteristics of the original pipe. If additional thickness is desired, additional material may be overlaid within the first 60 minutes without creating a cold joint.

CURING

Use an ASTM C309 conforming curing compound or 1315 Sealer as required in the standard.

QUALITY ASSURANCE & ACCEPTANCE

All work shall be performed by factory certified applicators only. Mortar cube test samples for material strengths may be taken randomly as directed by the inspector for testing at the owner's expense. Thickness can be verified with a wet gage at any random point of the

new interior surface. Any areas found to be thinner than minimum tolerances shall immediately receive additional material. Visual inspection should verify a leak-free, uniform appearance.

SAFETY

Observe OSHA standards for confined space entry.

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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