Technical Data Sheet

T-18 MMA Polymer Concrete Overlay System

T-18 is a methyl methacrylate (MMA) based bridge overlay system in which graded aggregates are bound together in slurry with a polymer binder and broadcast wearing course aggregate for vehicular traffic. T-18 can be applied up to a total thickness of 3/8" thereby extending the life of bridge decks by adding minimal deadweight, waterproofing, and high skid resistance characteristics. T-18 MMA Overlay will cure in approximately 1 - 2 hours at temperatures ranging from 14°F to 90°F thereby reducing closing times for vehicular traffic. T-18 is not intended for use over bituminous-based substrates.

Application Procedure

Surface Preparation: All surfaces that are to receive T-18 must be thoroughly clean, dry and free of all dirt, grease, rust, and other contaminates that might interfere with the proper adhesion of the overlay system. All damaged or deteriorated concrete must be removed using jackhammers or any other means and cut back to sound concrete and patched. All surfaces, including those that are patched, must be thoroughly shot-blasted or sand-blasted to ICRI concrete surface profile (CSP-5), steel deck surfaces should be blasted to SSCP-SP5 Near White with an anchor profile of 4 mils minimum. To verify that the surface preparation is adequate, ASTM C1583 or ACI 503R tensile adhesion tests should be performed.

Priming: Concrete or steel substrates must be dry prior to application of the primer. Priming is done with T-18 Primer using either rollers or brushes at a rate of approximately 100 square feet per gallon. The primer resin is mixed with an appropriate amount of powder hardener as shown in Table 1.

Care should be taken to avoid puddling of the primer. Re-prime any areas that indicate surface absorption of the primer. Dry silica sand (#0 mesh) should be used for a broadcast at the rate of approximately 4 pounds per 100 square feet. The prime coat must be allowed to cure tack-free before application of the T-18 Bridge Overlay System.

Table 1: Mixing Instructions for T-18 Primer and T-18 Topcoat

Resin or Substrate Temperature ºF	30g Bags of Powder Hardener Per Gallon of Primer or Resin
14 – 35	6
36 – 55	5
56 – 75	4
76 – 90	3

Slurry Application: A standard slurry unit consists of 50 pounds of T-18 powder component, two gallons of T-18 resin component and powder hardener. One unit at ¼" thickness yields approximately 27.5 square feet. The amount of hardener required per unit of slurry mix is shown in Table 2.

Slurry can be mixed in five gallon pails with a mixing blade or in concrete mortar mixers. Mix the T-18 liquid with T-18 powder hardener (quantity from Table 2) for 30 to 60 seconds. Add T-18 Powder Component and mix to obtain a uniform slurry consistency. Apply the slurry immediately after mixing by pouring directly onto the cured primed deck surface. Distribute by means of steel gauge rake to desired thickness.

Table 2: Powder Hardener Mixing Instructions for T-18 Slurry

Slurry Resin or Substrate Temperature ºF	Amount of Powder Hardener 30g Bags Per 2 Gallons of Slurry Resin
14 – 35	12
36 – 55	8
56 – 75	5
76 – 90	3

Broadcast Aggregate: Broadcast the specified course aggregate onto the fresh, uncured slurry until complete coverage is achieved. Aggregate should be thrown into the air and allowed to "rain" down onto the slurry to avoid rippling. Allow slurry to cure for approximately one hour. Excess aggregate is to be removed prior to application of top coat and can be reused if uncontaminated.

Topcoat: T-18 Top Coat is applied to the freshly swept wearing course aggregate using heavy nap rollers at the rate of approximately 40 square feet per gallon. The surface should be dry and the topcoat should not be allowed to puddle it is meant to simply lock down the aggregate rather than act as an integral film. Mix the topcoat resin with the appropriate amount of powder hardener according to Table 1.

Packaging

The standard packaging for Transpo T-18 consists of a powder component, a liquid component and prepackaged aggregate in the following sizes:

Powder: Available in 50 pound bags
Aggregate: Available in 80 pound bags
Liquid:

	55 Gal Drum	5 Gal Pail
T-18 Primer		
Gross Weight lb	437	40
Net Weight lb	396	36
Nominal Volume gal	48.3	4.42
T-18 Slurry Resin		
Gross Weight lb	477	46
Net Weight lb	440	42
Nominal Volume gal	52.3	5
T-18 Top Coat		
Gross Weight lb	478	44
Net Weight lb	441	40
Nominal Volume gal	54.6	5

Storage

All T-18 components should be stored out of direct sunlight in original, unopened containers in a cool, dry area at temperatures less than 85ºF. Under these conditions, product shelf life is twelve months from date of maunfacture.

T-18 resins contain paraffin that is necessary for tack-free curing. After long storage periods, paraffin may migrate to the surface in the form of agglomerates. These must be re-dispersed with a drum mixer to ensure an even distribution in the resin.

Properties*

Property	Value – Unit of Measure	Test
T-18 Primer		
Viscosity	40 - 100 cps	ASTM D2393
Density	8.93 lb/gal (1.07 kg/L)	ASTM D2849
Pot Life @ 70ºF (21°C)	10 - 30 minutes	ASTM C881
Solids Content (w/catalyst)	100%	ASTM D1644
T-18 Slurry Resin		
Viscosity	1100 - 1300 cps	ASTM D2393
Density	8.85 lb/gal (1.06 kg/L)	ASTM D2849
Pot Life @ 70ºF (21°C)	10 - 15 minutes	ASTM C881
Elongation at Break	14.5 %	ASTM D638 Type I
Solids Content (w/catalyst)	100 %	ASTM D1644
T-18 Slurry		
Compressive Strength	2,000 psi, min	ASTM C579 Method B
Flexural Strength	700 psi, min	ASTM C580 Method A
Tensile Strength	600 psi, min	ASTM C307
Coefficient of Thermal Expansion	4.4×10^{-5} in/in/°F (111.8 c 10^{-5}mm/mm/°C)	ASTM C531
Tensile Adhesion (pull-off concrete)	> 250 psi	ASTM C1583
Water Absorption	0.5 %/24h	ASTM D570
T-18 Top Coat		
Viscosity	500 - 600 cps	ASTM D2393
Density	8.26 lb/gal (0.99 kg/L)	ASTM D2849
Pot Life @70ºF (21°C)	8 – 15 minutes	ASTM C881
Solids Content (w/catalyst)	100%	ASTM D1644

* To be used as general guidelines only

Caution

The uncured liquid component is flammable. All appropriate precautions should be taken. After curing, it will not support combustion. As with any organic peroxide, BPO must be isolated from resins, accelerators, rust, and contaminants of any type.

It is recommended that all persons involved in mixing and application wear protective clothing such as goggles, rubber boots, and rubber gloves. As with all chemicals, read SDS prior to use.

Warranty

The following warranty is made in lieu of all other warranties, either expressed or implied. This product is manufactured with selected raw materials by skilled technicians. Neither seller nor manufacturer has any knowledge or control concerning the purchaser's use of product and no warranty is made as to the results of any use. The only obligation of either seller or manufacturer shall be to replace any quantity of this product that proves to be defective. Neither seller nor manufacturer assumes any liability for injury, loss, or damage resulting from use of this product.

2/2022

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