

T-18 MMA THIN OVERLAY SYSTEM

Transpo 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 coarse aggregate for vehicular traffic.

T-18 is applied at an approximate thickness of 3/8 inch / 10 mm thereby extending the life of bridge decks by adding minimal deadweight and high skid resistance characteristics. T-18 will cure in approximately one hour at temperatures ranging from -10°C and 32°C / 14°F and 90°F therefore, reducing closure times. T-18 is not intended for use over bituminous-based substrates.

APPLICATION

Surface Preparation

All surfaces that are to receive T-18 must be thoroughly clean, and free of all dirt, grease, rust, and other contaminants that might interfere with the proper adhesion of the overlay system. All damaged or deteriorated concrete must be removed 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, minimum), steel deck surfaces should be blasted to SSPC-SP10 Near White Metal / NACE No. 2 with an anchor profile of 4 mils minimum. Before application moisture content shall be confirmed using a non-destructive concrete moisture meter and shall not exceed 6%. To verify that the surface preparation is adequate, ASTM C1583 tensile adhesion tests should be performed.

Priming

Concrete or steel substrates must be dry prior to application of the primer. Priming on concrete is done with T-18 Primer. For other substrates, contact a Transpo representative. Primer is applied using either rollers or brushes at a rate of approximately 80 ft²/gal. The primer resin is mixed with an appropriate amount of BPO powder catalyst 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. The prime coat must be allowed to cure tack-free before application of the T-18 Slurry.

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

Temperature	No. of 30 g Bags of BPO per Gal of Primer or Topcoat	% Catalyst by Weight of Resin
-10°C – 2°C / 14°F – 35°F	6	6
2°C – 13°C / 36°F – 55°F	5	5
13°C – 24°C / 56°F – 75°F	4	4
24°C – 38°C / 76°F – 100°F	3	3

Slurry Application

A standard slurry unit consists of 22.7 kg / 50 lb of T-18 powder component, 7.5 kg / 2 gal of T-18 resin component and powder catalyst. One unit at 6 mm / 1/4 inch thickness yields approximately 2.55 m² / 27.5 ft². The amount of catalyst required per unit of slurry mix is shown in Table 2.

Slurry can be mixed in 5 gal pails with a mixing blade or in concrete mortar mixers. Mix the T-18 resin with powder catalyst 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 primed surface. Distribute by means of steel gauge rake to required thickness and back roll with spike roller for a uniform finish.

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

Temperature	No. of 30 g Bags of BPO per 2 Gal of T-18 Resin	% Catalyst by Weight of Resin
-10°C – 2°C / 14°F – 35°F	12	6
2°C – 13°C / 36°F – 55°F	8	5
13°C – 24°C / 56°F – 75°F	5	4
24°C – 38°C / 76°F – 100°F	3	3

Broadcast Aggregate

Broadcast the specified coarse aggregate onto the fresh, uncured slurry until refusal. 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 topcoat and can be reused if uncontaminated.

Topcoat

T-18 Topcoat is applied to the freshly swept surface using 1/4 inch nap rollers at the rate of approximately 40 ft²/gal. 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 catalyst according to Table 1.

PROPERTIES*

Property	Unit of Measure	Test
T-18 Primer		
Viscosity	40 – 100 cPs	Brookfield
Density	8.93 lb/gal	ASTM D2849
Pot Life @ 21°C / 70°F	10 – 30 minutes	ASTM C881
Solids Content (w/catalyst)	100%	ASTM D1644

T-18 Slurry

Compressive Strength, 7 days	>2,000 psi	ASTM C579 Method B
Flexural Strength, 7 days	>700 psi	ASTM C580 Method A
Tensile Strength, 7 days	>600 psi	ASTM C307
Coefficient of Thermal Expansion	4.4 x 10 ⁻⁵ in/in/°F	ASTM C531
Tensile Adhesion (pull-off concrete)	> 250 psi	ASTM C1583
Water Absorption	0.5%/24h	ASTM D570

T-18 Topcoat

Viscosity	500 – 600 cPs	Brookfield
Density	8.26 lb/gal	ASTM D2849
Pot Life @ 21°C / 70°F	8 – 15 minutes	ASTM C881
Solids Content (w/catalyst)	100%	ASTM D1644

PACKAGING

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

Powder: 22.7 kg / 50 lb bags

Aggregate: 36.4 kg / 80 lb bags

Resin: 18.5 kg / 5 gal pails or 204 kg / 55 gal drums

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 25°C / 77°F and cannot be allowed to freeze. Under these conditions, product shelf life is twelve months from date of manufacture.

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.



CAUTION

The uncured resin components are flammable. All appropriate precautions should be taken. After curing, it will not support ignition. 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.

*The value ranges stated above are based on system processing under laboratory conditions. Equipment configurations and/or field application conditions may produce variances in final system values.

WARRANTY: The following warranty is made in lieu of all other warranties, either expressed or implied. This product is manufactured of selected raw materials by skilled technicians. Neither seller nor manufacturer has any knowledge or control concerning the purchaser's use of either 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.