

Application Guide for **MasterSeal® Traffic 1500MD** Medium duty traffic deck crack-bridging waterproofing system

1. Recommended uses

- 1.1 **MasterSeal Traffic 1500MD** is intended for use on exposed decks and ramps where moderate crack bridging and wear resistance are required.
- 1.2 **MasterSeal Traffic 1500MD** is ideal for foot traffic areas, podiums, carparks of condominiums or offices which have no public parking.
- 1.3 **MasterSeal Traffic 1500MD** is also used on intermediate decks underneath which are offices, sales rooms, storerooms etc.

2. Surface Preparation

- 2.1 Ensure the substrate has properly cured and the concrete is profile free, no ridges or troughs, etc. Mechanically remove efflorescence before proceeding.
- 2.2 The substrates shall be free of laitance, loose or friable materials, debris and all contaminants by mechanical means preferably by captive shot blasting with hand held diamond grinders for edge work to achieve CSP 3 finish.
- 2.3 Bag up blowholes, especially on vertical surfaces, and carry out any necessary repairs in good time prior to priming. "Bagging up" should be carried out using a suitable MasterEmaco repair mortar.
- 2.4 To vertical surfaces, all form release agent must be removed prior to applying any primer.
- 2.5 Ensure adequate masking off of adjacent areas has been completed and all detailing is in accordance with the project drawing.

3. Priming

- 3.1 Prime surface by applying **MasterEmaco 2525**.
- 3.2 Before mixing, pre-condition both A and B components to a temperature of approximately 15 to 25°C. Pour the entire contents of Part B into the container of Part A. Do not mix by hand. Mix with a mechanical drill and paddle at a very low speed (ca. 300rpm) for at least 3 minutes. Scrape the sides and the bottom of the container several times to ensure complete mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles. Do not work out of original container. After proper mixing to a homogeneous consistency pour the mixed Parts A and B into a fresh container and mix for another minute.
- 3.3 Apply a thin coat of **MasterEmaco 2525** to the prepared substrate by spreading with a squeegee at the minimum rate of 0.3 – 0.5 L/m² and finished with a roller.
- 3.4 Porous substrates may require a second coat to ensure the surface is fully sealed.
- 3.5 Broadcast **MasterTop Filler F5** at a rate of 0.8 – 1.0kg/m² into the still-wet primer to produce a light, even cover. Allow to cure for at least 24 hours before removing all excess sand with a stiff broom and vacuum.

Note:

1. **MasterEmaco 2525** shall be applied when the ambient temperature is constant or falling, as this will decrease the risk of bubble formation due to expansion of air that is enclosed in the concrete.
2. **MasterEmaco 2525** shall be applied when the substrate temperature is 8-30°C.
3. The tensile strength of the concrete shall not be less than 1.5MPa and the surface is touch dry
4. Membrane application onto primer:

Application	at 10°C	hr	min. 12
	at 20°C	hr	min 9
	at 30°C	hr	min 4*
	at 30°C & > 80% RH	hr	min 4*

* When primer is tack free subsequent coat can be applied.

- 3.6 Metal Surfaces:
- 3.6.1 Remove dust, debris, and other contaminants from vent, drain pipe, and post penetrations; reglets; and other metal surfaces. Clean surfaces to bright metal and prime with sealant primer without delay.
 - 3.6.2 Provide cant with deep joint sealant to eliminate 90-degree angles and allow sealant to fully cure.
 - 3.6.3 Detail cant with primer and base coat in accordance with manufacturer's instructions before application of deck coating system.

4. Surface Pre-stripping and Detailing

- 4.1 Where joints, connections between old and new applications and for repair work pre-stripe with **MasterEmaco 2525** 25 mm beyond surfaces that require pre-application of basecoat.
- 4.2 For non-moving joints and cracks less than 1.5 mm wide, apply 0.5 mm pre-stripping of base coat over cured primer. Apply base coat to fill and overlap joint or crack 75 mm on each side. Feather the edges.
- 4.3 Dynamic cracks and joints over 1.5 mm wide shall be routed to a minimum of 6 mm by 6 mm and cleaned. Install bond breaker tape to prevent adhesion to bottom of joint. Prime joint faces only with sealant primer and fill with sealant. Fill joints deeper than 6 mm with backer rod and deep joint sealant. For cracks, sealant shall be flush with adjacent surface. For expansion joints, sealant shall be slightly concave.
- 4.4 Sealed joints 12 mm or less shall be coated over with deck coating system.
- 4.5 Expansion joints exceeding 12 mm wide, including primary wide expansion-joint system, shall not be coated. Joints should be reflected through the coating and suitable protection provided as required by the architect.
- 4.6 Where coating system will be terminated and no wall, joint, or other break exists, cut 6 mm by 6 mm keyway into concrete. Fill and coat keyway as application of base coat progresses.

5. Membrane: **MasterSeal M 210**

- 5.1 Ensure surface for application is dry, free from dust, debris and all other contaminants which may inhibit adhesion between the membrane and concrete.
- 5.2 **MasterSeal M 210** is supplied in working packs. Before mixing, pre-condition to a temperature of approximately 15 to 25°C.
- 5.3 Empty material in the bladder into the empty drum and mix with a mechanical drill and paddle at a low speed (approx. 300 rpm) for at least 2 minutes or until the colour is homogeneous.
- 5.4 The **MasterSeal M 210** can be applied directly from the bladder after agitation.
- 5.5 Or **MasterSeal M 210** is poured onto the prepared substrate and spread with a notched trowel or spreader (rubber or steel) over the "tack free" primer at a coverage of 1.3-1.5kg/m² to achieve a 1.2-1.35mm thick uniform grey membrane. Allow the membrane to cure for at least 24 hour or until tack free prior to subsequent topping.
- 5.6 The curing time of the material is influenced by the ambient, material and substrate temperatures. At low temperatures, the chemical reactions are slowed down, this lengthens the pot-life, open time and curing times.

- 5.7 High temperatures speed up the chemical reactions thus the time frames mentioned above are shortened accordingly. To fully cure, the material, substrate and application temperatures should not fall below the minimum.

Note:

1. **MasterSeal M 210** must be applied within the recommended temperature and relative humidity limits.
2. The temperature of the substrate must be at least 3°C above the dew point during the application

6. On-site QA

6.1 On-site QA is important to ensure that both the substrate and application are within the correct limits. There are three key QA tests: adhesion to the substrate, thickness of application and holiday testing.

6.1.1 Adhesion to the substrate:

- 6.1.1.1 Prior to application the substrate should be checked for soundness with a number of direct tensile strengths to ensure the substrate is suitable. Minimum direct tensile strength of the concrete substrate should be 1.5MPa.
- 6.1.1.2 Substrates other than concrete (block work, brick etc) should be tested for soundness and integrity.
- 6.1.1.3 During the application and whilst the MasterSeal is still wet place a dolly at 3 metre intervals or as agreed by the supervising engineer into the membrane and allow to cure overnight.
- 6.1.1.4 Once cured using a sharp knife cut through the membrane to the primer and then do a direct tensile test using a suitable tester.
- 6.1.1.5 Record the results and repeat if the direct tensile strength is less than 1.0MPa (As we have done a test on the substrate we will know that the concrete substrate is more than 1.0MPa).



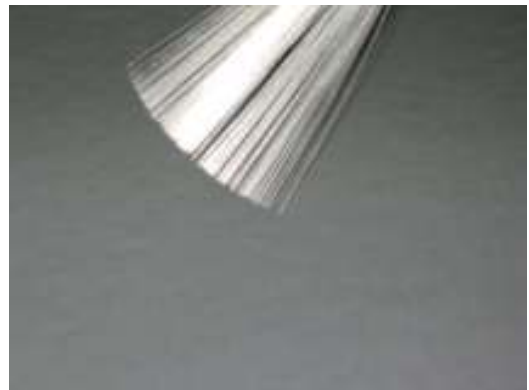
6.1.2 Thickness testing

- 6.1.2.1 The thickness of the material can be easily checked during application through the use of a wet film thickness gauge.
- 6.1.2.2 The gauge is placed into the wet material and the thickness can be determined by the last point that has wet material on it.



6.1.3 Holiday testing

- 6.1.3.1 Ensuring that the membrane is pin hole free is important for the longevity of the installation and the water-tightness of the structure
- 6.1.3.2 Electronic holiday testers are available that test for changes in resistance between an earth point and the machine.
- 6.1.3.3 These spark testers use a wand with fine metal filaments that is drawn across the surface and a spark is created and an audible alarm sounds when a pin hole (void or thin section) is found.
- 6.1.3.4 Once a pin hole is found it can be repaired and the process repeated to ensure a complete lining is in place.



7. Wear-coat*: MasterSeal TC 465

**In the MasterSeal 1500 MD system the topcoat is broadcast with sand to create a wear-coat and the number of coats and amount of sand is dependent on the expected environment.*

- 7.1 Ensure surface for application is dry, free from dust, debris and all other contaminants.
- 7.2 Before mixing, pre-condition to a temperature of approximately 15 to 29°C.
- 7.3 Mix with a mechanical drill and paddle at a very low speed (ca. 300rpm) for at least 2 minutes. Scrape the sides and the bottom of the container several times to ensure complete mixing. Keep the mixer blades submerged in the coating to avoid introducing air bubbles.
- 7.4 Apply **MasterSeal TC 465** over the MasterSeal M 210 with a squeegee at the minimum rate of 0.4 – 0.8 kg/m².
- 7.5 Fully broadcast with **MasterTop Filler F10** into the still wet wear coat at the rate of 1.0 – 3.0 kg/m². Allow to cure for at least 6 hours before removing all excess aggregate with a stiff broom and vacuum. The achieved thickness shall be 1-2mm. This can be repeated to create thicker wear-coat layers if desired.

Note:

1. Wear-coat application times onto MasterSeal M 210

Wear Coat Application MasterSeal TC 465	at 10°C	hr	min. 16
		hr	max. 36
	at 20°C	hr	min 8
		hr	max 24
	at 30°C	hr	min 4
	hr	max 16	
	at 30°C and >80% RH humidity	hr	min 4
		hr	max 16

2. It is important that MasterSeal TC 465 is applied over clean and dry MasterSeal M 210

8. Top-Coat: MasterSeal TC 465

- 8.1 Ensure surface for application is dry, free from dust, debris and all other contaminants.
- 8.2 Prior to application, **MasterSeal TC 465** shall be preconditioned to a temperature of between 15 and 25°C.
- 8.3 Mix with a mechanical drill and paddle at a low speed (approx. 300 rpm) until product is homogeneous.
- 8.4 Apply **MasterSeal TC 465** polyurethane sealer over **MasterSeal TC 465** wear-coat with a squeegee and followed by back rolling with 12-14mm nap roller at least 24 hours later than the original application to specified colour at a rate of 0.3 – 0.6 kg/m² in one coat to achieve a dry film thickness of 0.2 – 0.32mm.
- 8.5 Allow to cure for at least 4 days before opening to traffic.

Note:

1. The temperature of the substrate must be at least 3 °C above the dew point before application and must remain so until the topcoat has cured.
2. Topcoat **MasterSeal TC 458** application times onto Wear-coat intervals as below:

Top Coat Application	at 10°C	hr	min. 12
	at 20°C	hr	min 9
	at 30°C	hr	min 6
	at 30°C & > 80% RH	hr	min 6

9. Protection of Work

- 9.1 The car park deck must not be used as a working platform by other trades unless fully protected to the satisfaction of the Contract Administrator and deck installer.
- 9.2 No harmful substances should come into contact with the new system.
- 9.3 No building materials, scaffolding, plant machinery etc should be stored on the deck.
- 9.4 Finished works must be protected from damage by subsequent building operations.

Appendix 1

Dew Point is the temperature at which condensations forms.

To determine the Dew Point from the chart below, find the temperature of the air on the left side of the table. Next, locate the relative humidity of the air across the top of the table. The intersection of these two numbers in the matrix identifies the temperature at which Dew Point is reached. When air comes in contact with a surface that is at or below its Dew Point temperature, condensation will form on that surface.

Example: If the temperature in a facility is 24°C and the relative humidity is 35%, the intersection of the two shows that the Dew Point is reached at a temperature of 7°C, or below. This means that moisture vapour in the 24° C / 35% RH air will condense on any surface that is at or below the Dew Point temperature of 7°C.

Air Temperature [C]	Relative Humidity								
	100	90	80	70	60	50	40	30	20
-10	-10,0	-11,3	-12,8	-14,4	-16,3	-18,4	-21,0	-24,3	-28,7
-8	-8,0	-9,3	-10,8	-12,5	-14,4	-16,6	-19,2	-22,5	-27,0
-6	-6,0	-7,4	-8,9	-10,6	-12,5	-14,7	-17,4	-20,7	-25,3
-4	-4,0	-5,4	-6,9	-8,7	-10,6	-12,9	-15,6	-19,0	-23,6
-2	-2,0	-3,4	-5,0	-6,7	-8,7	-11,0	-13,8	-17,2	-21,9
0	0,0	-1,4	-3,0	-4,8	-6,8	-9,2	-12,0	-15,5	-20,3
2	2,0	0,5	-1,1	-2,9	-4,9	-7,3	-10,2	-13,7	-18,6
4	4,0	2,5	0,9	-1,0	-3,1	-5,5	-8,4	-12,0	-16,9
6	6,0	4,5	2,8	0,9	-1,2	-3,6	-6,6	-10,3	-15,3
8	8,0	6,5	4,8	2,9	0,7	-1,8	-4,8	-8,5	-13,6
10	10,0	8,4	6,7	4,8	2,6	0,1	-3,0	-6,8	-11,9
12	12,0	10,4	8,7	6,7	4,5	1,9	-1,2	-5,0	-10,3
14	14,0	12,4	10,6	8,6	6,4	3,7	0,6	-3,3	-8,6
16	16,0	14,4	12,5	10,5	8,2	5,6	2,4	-1,6	-7,0
18	18,0	16,3	14,5	12,4	10,1	7,4	4,2	0,2	-5,3
20	20,0	18,3	16,4	14,4	12,0	9,3	6,0	1,9	-3,6
22	22,0	20,3	18,4	16,3	13,9	11,1	7,8	3,6	-2,0
24	24,0	22,3	20,3	18,2	15,7	12,9	9,6	5,3	-0,4
26	26,0	24,2	22,3	20,1	17,6	14,8	11,3	7,1	1,3
28	28,0	26,2	24,2	22,0	19,5	16,6	13,1	8,8	2,9
30	30,0	28,2	26,2	23,9	21,4	18,4	14,9	10,5	4,6
32	32,0	30,1	28,1	25,8	23,2	20,3	16,7	12,2	6,2
34	34,0	32,1	30,0	27,7	25,1	22,1	18,5	13,9	7,8
36	36,0	34,1	32,0	29,6	27,0	23,9	20,2	15,7	9,5
38	38,0	36,1	33,9	31,6	28,9	25,7	22,0	17,4	11,1
40	40,0	38,0	35,9	33,5	30,7	27,6	23,8	19,1	12,7
42	42,0	40,0	37,8	35,4	32,6	29,4	25,6	20,8	14,4
44	44,0	42,0	39,8	37,3	34,5	31,2	27,3	22,5	16,0

Application Guide for MasterSeal CR 435 Sealant V3 042018

STATEMENT OF RESPONSIBILITY

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