

Annexure MRTS11.1 (December 2021) Sprayed Bituminous Treatments (Excluding Emulsion)



Specific Contract Requirements

Contract Number

Note: Clause references within brackets in this Annexure refer to Clauses in the parent Technical Specification MRTS11 unless otherwise noted.

Part A – Completed by Principal as Part of Brief

1 Seal design (Clause 6.1.1)

The seal shall be designed by The Principal The Contractor

2 Specific treatment details (Clauses 6.1.1, 6.3.1, 12.8, 13.2, 14.2, Table 2 and Table 6.1.1)

The specific treatment details applicable to this Contract are as follows.

Control Line					
Reference Location					
Section	From				
	To				
	Length (m)				
	Nom. Spray Width (m)				
	Area (m²)				
Initial Treatment	Treatment type †¹				
	Work Item (s) (if applicable)				
	First Application of Binder and/or Aggregate (where applicable)	Binder Class †²			
		Est. Rate (L/m²) †³			
		Cover Material/Aggregate			
		Est. Rate (m² / m³) †⁴			
		Binder Class †²			
		Est. Rate (L/m²) †³			
		Cover Aggregate			

	Second Application of Binder and/or Aggregate (where applicable)	Est. Rate (m ² / m ³) † ⁴				
Secondary Treatment / Retreatment	Treatment type † ¹					
	Work Item (s) (if applicable)					
	First Application of Binder and/or Aggregate (where applicable)	Binder Class † ²				
		Est. Rate (L/m ²) † ³				
		Cover Aggregate				
		Est. Rate (m ² / m ³) † ⁴				
	Second Application of Binder and/or Aggregate (where applicable)	Binder Class † ²				
		Est. Rate (L/m ²) † ³				
		Cover Aggregate				
		Est. Rate (m ² / m ³) † ⁴				
	Third Application of Binder and/or Aggregate (where applicable)	Binder Class † ²				
		Est. Rate (L/m ²) † ³				
		Cover Aggregate				
Est. Rate (m ² / m ³) † ⁴						

Note

†¹ Treatment type – refer Table 1 in MRTS11.

†² Class of bituminous material – refer Table 6.1.1 in MRTS11.

†³ Estimated Spray Rate 15°C of bituminous material.

†⁴ Estimated Spread Rate of cover aggregate.

3 Seal design

3.1 Contractor testing for Principal's seal design (Clauses 6.1.1 and 6.2)

The Contractor is required to complete testing of the cover aggregate's Particle Size Distribution, Flakiness Index and Average Least Dimension

Yes

No

The Contractor is required to complete texture depth testing

Yes

No

The Contractor is required to complete ball penetration testing

Yes

No

3.2 Requirements of the Contractor's seal design (Clauses 6.1.1 and 6.3.1)

The following additional requirements shall apply to the Contractor's seal design.

Design Item	Conditions
General	
Traffic	
Underlying Pavement	

4 Requirements for materials

4.1 Cover aggregate adhesion agent (Table 7.1)

Adhesion agent shall conform to the following requirements.

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4.2 Protective material over cover aggregate (Clause 8.2 of MRTS11 and Clause 10 of MRTS22)

Protective material over cover aggregates shall conform to the following requirements.

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5 Additional plant requirements (Clause 9)

When sealing is undertaken during cold weather conditions (i.e. Risk Level 2 or 3 situations as per Technical Note 186 *Sealing in Cold Weather Conditions*), the minimum number of rollers for the works should be increased by one. (That is determine the minimum number of rollers as per Clause 9 and increase it by one. This means a minimum of 3 or more rollers should be specified in Risk Level 2 or 3 situations.)

The following minimum requirements shall apply to plant additional to those state in Clause 9.



6 Additional process requirements – spraying

6.1 Programming of spray operations (Clause 10.4)

The following requirements shall apply to programming spray runs additional to those stated in Clause 10.4.

In addition to the requirements of Clause 14.3 of MRTS11, when sealing is undertaken during cold weather conditions, consider specifying that cover aggregate must be spread and at least the first two roller passes completed before the pavement surface temperature of the sprayed binder falls below a certain minimum temperature. The following minimum temperatures are recommended to encourage a strong bond between the bituminous binder and aggregate.

- 40°C, when the bituminous binder does not include cutter
- 35°C, when the bituminous binder contains 2 parts of cutter
- 30°C, when the bituminous binder contains 4 parts of cutter
- 25°C, when the bituminous binder contains 6 parts of cutter

These temperatures are appropriate for C170, C240, M500, S10E, S35E, S45R and S15RF ~~S45R~~ binder classes as well as blends of C170 bitumen and 5 – 10 parts crumb rubber ~~containing adhesion agent~~. Higher temperatures should be adopted for C320, S15E and S20E binder classes.

Further information on the relationship between binder temperature and aggregate adhesion can be found in Austroads reports AP-T344-19, AP-T210-12 and AP-T180-11.



6.2 Minimum pavement surface temperature (Clause 11.2)

The minimum pavement surface temperature prior to spraying shall comply with the following.

Location	Binder Type / Class / Grade	Temperature (Degrees Celsius)

6.3 Sealing in cold weather conditions (Clause 11.3)

The following restrictions to the application of sprayed bituminous treatments shall apply.

Treatment Type	Months of year when application of sprayed bituminous treatments is not permitted	Months of year when additional measures must be implemented (refer Clause 6.4)
Secondary treatments and retreatments that will be trafficked ¹		
Initial seals ²		

Note

¹ Where no indication is given, these treatments shall not be applied during the months of June, July and August and additional measures must be implemented in the months of May and September.

² Where no indication is given, additional measures must be implemented in the months of May through to September.

The months of the year when application of sprayed bituminous treatments is not permitted and the months of the year when additional measures must be implemented to minimise the risk of stripping due to cold weather should be determined for each specific project location in accordance with Technical Note 186 *Sealing in Cold Weather Conditions*. Relying on the default requirements is not recommended.

During the months of the year when additional measures must be implemented (as indicated in the table above), the additional measures nominated below shall apply:

- A Sealing must not occur when the Australian Bureau of Meteorology forecasts that the minimum air temperature will fall below 10°C and/or the chance of any rain exceeds 50% during the first 7 days after construction.
- B Undertake daily inspections of seals immediately following nights where the minimum air temperature falls below 10°C during the Defects Liability Period. Outcomes of these inspections must be reported immediately to the Administrator.
- C Implement enhanced construction procedures (as nominated in Clauses 5 and 6.1 of this Annexure).
- D Implement additional early trafficking requirements (as nominated in Clause 8 of this Annexure).
- E Availability of plant and material with 24 hours notice to “dry mat” sprayed bituminous treatments with 7 mm precoated cover aggregate during the Defects Liability Period.
- F

In situations where no additional measures are nominated, measures A and B shall apply.

6.4 Time period(s) between bitumen treatments (Clause 11.4)

The following time period(s) shall apply between bituminous treatments

Location	Lower Bituminous Treatment	Upper Bituminous Treatment	Maximum or Minimum	Time Period (days)

6.5 Time Periods(s) between double / double seal (Clause 11.4)

The following time period(s) shall apply between the first and second coat of double / double seals.

6.6 Requirements for cutting back binder (Clause 12.7)

The following cutting requirements apply to secondary treatments and retreatments placed immediately below asphalt.

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7 Additional process requirements – spreading

7.1 Excess prime cover material (Clause 13.5)

Excess prime cover material shall be removed from the surface.

Yes No

7.2 Requirements for aggregate spreader (Clause 14.4)

The following types of aggregate shall be used.

Spreader Type	Spreader Characteristics		
	Method of Control of Aggregate Spread Rate During Spreading	Variable Width Gate Mechanism	Spreader Type to be Used ^{Note 1}
A ^{Note 2}	Remote control operation of aggregate box (for example, Operator located in cab)	Automatic	
B ^{Note 3}	Automated and calibrated (independent of Operator)	Automatic	

^{Note 1} If Type A is nominated, the Contractor may use Type A or Type B. If Type B is nominated, the Contractor must use only Type B.

^{Note 2} Typical example includes VicRoads Roller Spreader.

^{Note 3} Typical examples include Lenny Spreader Box (SpreaderBoxes Australia), Bearcat Spreader (USA), Phoenix Spreader (United Kingdom) and Wirtgen Spreader (Germany).

7.3 Number of roller passes (Clause 14.5.5)

The minimum number of roller passes on cover aggregate shall be as stated below.

Location	Binder Type / Class / Grade	Number of Passes

7.4 Removal of loose aggregate after rolling (Clause 14.6)

The minimum number of roller passes on cover aggregate shall be as stated below.

Location	Maximum Allowable Loose Aggregate Particles

8 Early trafficking requirements (Clause 14.8)

The minimum early trafficking requirements shall be as stated below.

When sealing is undertaken during cold weather conditions, consider specifying that the Contractor must:

- undertake 'pull-out' tests in accordance with Q227 before the seal is opened to traffic
- use of a pilot vehicle to control vehicle speeds during initial trafficking of the seal, and/or
- extend the duration that reduced speed limits apply when fresh seals are trafficked.

Further advice can be found in TN186 *Sealing in Cold Weather Conditions*.



9 Surface texture depth requirements (Clause 17.2)

Surface texture testing shall achieve the requirements stated below.

Location	Minimum Surface Texture Depth Requirements (mm)
<i>"Until a Transport and Main Roads policy on macrotexture and microtexture is released, the minimum surface texture depth for sprayed seals shall not be specified"</i>	

10 Supplementary requirements (Clause 18)

The following supplementary requirements shall apply to this Technical Specification.

11 Intelligent Construction (IC) rollers (Clause 14.5.6)

Intelligent Construction (IC) rollers shall be used in the sealing process at the following locations or times or in the following circumstances. If no locations, times or circumstances are specified below then the use of Intelligent Construction (IC) rollers is not required.

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