

Roads

Master Specification

RD-BP-C6 Slurry / Micro Surfacing of Pavements

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RD-BP-C6 Slurry / Micro Surfacing of Pavements

1 General

- 1.1 This Part specifies the requirements for the design, supply and application of bituminous slurry / micro surfacing. It does not cover Cape Seals (refer RD-BP-C7 "Application of Cape Seals") or other forms of thin surfacing less than 30 mm nominal thickness.
- 1.2 The design, supply and application of slurry / micro surfacing shall be undertaken in accordance with Austroads AP-T26 "Guidelines and Specification for Bituminous Slurry Surfacing" (AP-T26).
- 1.3 Unless specified otherwise in the Contract Documents, all surfacing under this Contract shall be micro surfacing.
- 1.4 The following definitions apply to this Contract:

| Term | Definition |
|-----------------|---|
| Micro surfacing | A bituminous slurry surfacing that contains polymer modified emulsion which is capable of being spread in variably thick layers for rut filling, correction courses and for wearing courses requiring good texture. |
| Slurry | A stable suspension of aggregate and filler in a less dense, liquid bitumen emulsion. |

2 Quality Requirements

- 2.1 The Contractor shall prepare and implement a Quality Plan that includes detailed procedures for:
- processes which will ensure consistency in the manufacture of the slurry / micro surfacing layer and in particular shall cover such aspects as maximum and minimum pavement temperatures, drainage, coating of the individual stones and the quality assurance of raw material feed stock;
 - method of cleaning the existing surface of the road; and
 - method of placing and spreading of mix including the maximum layer thickness for each mix size and the minimum time between the placement of layers.
- 2.2 If not provided previously, the procedures shall be submitted at least 28 days prior to the commencement of site work.
- 2.3 Provision of the procedures listed in this Clause shall constitute a **Hold Point**.

3 Materials

- 3.1 Aggregate shall comply with RD-PV-S1 "Supply of Pavement Materials" for asphalt aggregates and Part 5 "Materials" of AP-T26. Where a conflict arises between these documents AP-T26 shall take precedence.
- 3.2 Binder shall comply with RD-BP-S1 "Supply of Bituminous Materials".

4 Constraints to Work

- 4.1 Trafficking of the surface will not be permitted until the application of the slurry / micro surfacing is complete and has had sufficient time to cure.
- 4.2 Refer to PC-SM1 "Provision for Traffic" for other constraints relating to traffic control.

5 Design of Mix

- 5.1 The design of the slurry / micro surfacing shall be undertaken by the Contractor in accordance with Part 6 "Mix Design" of AP-T26.

- 5.2 The Contractor shall prepare a trial batch of each proposed mix produced by the mixing plant from which the slurry / micro surfacing layer is to be supplied. Test results of the following properties shall be submitted from each trial batch:
- a) Aggregate Grading; and
 - b) Binder Content (by mass of the total mix).
- 5.3 At least 14 days before commencing production of the slurry / micro surfacing, the Contractor shall submit:
- a) details of the design, vide Part 6.3 "Mix Design Submission" of AP-T26, including evidence of past performance, the mix design parameters and test results; and
 - b) details of the mix (size, type and aggregate source) to be placed at each site.
- 5.4 If the Contractor proposes to vary the proportions of the constituents in a nominated mix / rate or proposes to change the source of supply of any constituent, the Contractor shall submit a new design.
- 5.5 Submission of the details of the design, test results and any changes to the design shall constitute a **Hold Point**.

6 Manufacture of Mixes

- 6.1 The product shall be prepared in a manufacturing plant or blending plant of proven performance which shall be calibrated as per the requirements of Part 7 "Plant" of AP-T26.
- 6.2 Prior to commencement of work the Contractor shall provide paving unit calibration documentation with the component materials of the approved mix.
- 6.3 Manufacturing variations shall not exceed the limits specified in Table V "Maximum Permitted Variations from Job Mix Design" of AP-T26.

7 Sampling and Testing

General

- 7.1 The Contractor shall conduct sampling and testing of the mix in accordance with Part 9 "Sampling and Testing" of AP-T26. Sampling shall be undertaken on a random basis.

Audit Samples

- 7.2 The Contractor shall provide duplicate samples from each lot for product auditing purposes and provide notification when sampling has occurred.
- 7.3 All samples shall be delivered to the Department's Laboratory at 19 Bridge Road, Walkley Heights at a minimum of weekly intervals. The samples will be stored at the Principal's expense.
- 7.4 The Contractor shall provide documentation to confirm that the samples have been received at the Department's Laboratory, and submit this as part of the lot package.
- 7.5 All samples shall be clearly marked and traceable to the relevant Lot in accordance with PC-QA1 "Quality System Requirements".

8 Application of Product

- 8.1 The Contractor shall apply the product in accordance with Part 8 "Field Application" of AP-T26.

9 Properties of Finished Surfacing

General

- 9.1 The intent of the work is to produce a thin, durable surfacing layer that has sufficient bond strength, permeability, rideability and skid resistance.
- 9.2 The work shall comply with the requirements specified in:
- Clause 13 "Verification Requirements" at Practical Completion, and
 - Clause 9.3 "Surface Characteristics" and Clause 9.5 "Texture" for a period of 12 months after the Date of Practical Completion.

Surface Characteristics

- 9.3 The finished surface shall be free of the following defects:
- segregated on "bony" areas;
 - soft areas;
 - "fatty" areas;
 - ravelling and loss of material;
 - surface cracking;
 - shoving; and
 - ruts.
- 9.4 The existence of any defects shall in the first instance be determined by visual inspection. Where deemed necessary by the Superintendent, the Contractor shall undertake testing indicated in Clause 13 "Verification Requirements" and Clause 9.5 "Texture".

Texture

- 9.5 The texture of the finished wearing surface at the end of the defects liability period shall be no less than the values listed in Table RD-BP-C6 9-1.

Table RD-BP-C6 9-1 Surface Texture Requirements for Wearing Courses

| Mix Size | Texture | |
|-------------|-----------------|-------------------|
| | 90 km/h or less | More than 90 km/h |
| Size 4 & 5 | 0.4 mm | N/A* |
| Size 7 & 10 | 0.8 mm | 1.0 mm |

* Use of this size mix in this speed environment is not recommended.

10 Records of Work

- 10.1 The Contractor shall complete Daily Record Sheets, or an approved equivalent, which shall then be certified correct by the Contractor and forwarded at the completion of a day's work.
- 10.2 Details of all materials applied shall be recorded immediately after each application.

11 Test Procedures

- 11.1 In addition to the test procedures specified in AP-T26, RD-BP-S1 "Supply of Bituminous Materials" and / or RD-BP-C5 "Application of Sprayed Bituminous Surfacing, the Contractor shall use the following test procedures (refer https://www.dpti.sa.gov.au/contractor_documents) to verify conformance with the Specification:

Table RD-BP-C6 11-1 Test Procedures

| Test | Test Procedure |
|--|----------------|
| Aggregate Grading | AS 1141.11 |
| Binder Content: | |
| Pressure Filtration Method | TP 470 |
| Ignition Oven Method | AST 04:1999 |
| Moisture Content: | |
| Oven Drying Method | AS 1289.2.1.1 |
| Microwave Method | AS 1289.2.1.4 |
| Determination of Average Texture Depth of a Pavement Surface using the Sand Patch Method | TP 346 |
| Traffic Time (Set & Cure for Bituminous Slurry) | AG:PT/T271 |
| Wear Loss (Abrasion Loss of Bituminous Slurry) | AG:PT/T272 |
| Excess Binder in Bituminous Slurry | AG:PT/T273 |

12 Hold Points

12.1 The following is a summary of Hold Points referenced in this Part:

| Document Ref. | Hold Point | Response Time |
|---------------|---|---------------|
| 2.3 | Submission of Procedures (if not in Post Tender Submission) | 7 days |
| 5.5 | Submission of mix details, test results and any changes to the mix design | 7 days |

13 Verification Requirements and Records

13.1 The Contractor shall supply written verification that the following requirements have been complied with and supply the verification with the lot package.

Table RD-BP-C6 13-1 Verification Requirements

| Document Ref. | Subject | Property | Test Procedure | Test Frequency | Acceptance Limits |
|---------------|------------------------------------|---------------------------|---|---|--|
| 3 & 8 | Supply of Slurry / Micro Surfacing | Component material supply | In accordance with Table VII "Minimum Testing and Verification Frequency" of AP-T26 | | |
| | | Production and laying | In accordance with Table VII "Minimum Testing and Verification Frequency" of AP-T26 | | |
| 9 | Surface Finish | Longitudinal evenness | Deviation under a 1.2 m straight edge | 6 random measurements per lot and specific measurements at joints | Max of 5 mm deviation |
| | | Transverse evenness | Deviation under a 1.2 m straight edge | 6 random measurements in left hand wheel paths per lot | Max of 5 mm deviation, excluding designed points of crossfall change |
| | | Crossfall * | Measurement with "smart level" or similar | 6 random measurements per lot | Crossfall shall be a minimum of 3% (excluding superelevated curves), and shall allow for continuous water drainage without ponding |

| Document Ref. | Subject | Property | Test Procedure | Test Frequency | Acceptance Limits |
|---------------|---------|-------------------|-----------------------|--|---|
| | | Texture depth | TP 346 | 4 random measurements in left hand wheel paths and 2 random measurements in right hand wheel paths per lot | In accordance with Clause 9.5 "Texture" |
| | | Skid Resistance** | British Pendulum (BP) | 4 random measurements in left hand wheel paths and 2 random measurements in right hand wheel paths per lot m | BP 55 to 60 International Friction Index |
| | | Skid Resistance** | Griptester | Measurements in left hand wheel path in outermost lane in each direction | Grip Number greater than 0.60 (target values only, not acceptance limits) |