

Roads

Master Specification

RD-BP-C8 Application of Pavement Crack Sealant

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Contents

Contents	3
RD-BP-C8 Application of Pavement Crack Sealant	4
1 General	4
2 Quality Requirements	4
3 Materials	4
4 Sealant / Work Method	4
5 Performance Requirements	5
6 Sampling and Testing	6
7 Hold Points	6
8 Verification Requirements and Records	6

RD-BP-C8 Application of Pavement Crack Sealant

1 General

- 1.1 This Part specifies the requirements for the sealing of cracks using hot placed elastomeric / crumb rubber sealants in existing asphalt and spray seal pavements to prevent ingress of water into the pavement.

2 Quality Requirements

- 2.1 If not provided beforehand, the Contractor must provide the following documentation 14 days prior to the commencement of works on site:
- a) details of the Approved Product (refer Clause 3 “General”);
 - b) details of work method including procedures for the application of the sealant for each crack sealing operation type and treated crack width range;
 - c) sealant manufacturer’s instructions and product performance data;
 - d) demonstrate performance characteristics are met; and
 - e) plant to be used and demonstration of its appropriateness.
- 2.2 Provision of the above documentation or any change to this documentation shall constitute a **Hold Point**.

3 Materials

General

- 3.1 Crack sealant must be a DPTI Approved Product. Refer to the DPTI Approved Products List, available from: <http://www.dpti.sa.gov.au/documents/contractsandtenders/specifications/general>.
- 3.2 Approved products must meet the requirements of RD-BP-S3 “Supply of Pavement Crack Sealant”.

Aggregate

- 3.3 If blinding is necessary to meet tackiness considerations, the materials must comply with RD-PV-S1 “Supply of Pavement Materials”.
- 3.4 Sand must be either Type Sa–B or Sa–C.
- 3.5 Aggregate must be Sealing Aggregate Type SA7-5 or SA5-2.

4 Sealant / Work Method

General

- 4.1 A lot is defined as the pavement crack sealed per week.

Traffic

- 4.2 Traffic control must be undertaken in accordance with the requirements of PC-SM1 "Provision for Traffic".
- 4.3 The Contractor must ensure that extrusion or picking up of the sealant does not occur.

Temperature

- 4.4 Hot sealants must not be placed if the pavement is damp or its temperature is below 0°C.

Pavement Surface Preparation

- 4.5 Crack sealing must not be carried out where excessive cracks exist such as in crocodile cracking. Generally this includes any area where there is a closed cell of less than 150 mm in length and width.
- 4.6 Unless specified otherwise, at a minimum the following treatments must be applied to the pavement surface at the crack location:
- using a lance to thoroughly clean the cracks of all foreign material, including old crack sealant (heating capacity is optional; if hot air is utilised, care must be exercised to keep the lance moving to avoid burning the surrounding pavement);
 - brushing or other techniques to remove locked in detritus (optional); and
 - ensuring the crack is as dry as practicable, using heating if necessary.
- 4.7 For efficient removal of foreign materials from within cracks, equipment must supply compressed air to a minimum pressure of 800 kPa.

Application of Sealant

- 4.8 A tack coat appropriate to the sealant must be applied in preparation for the sealant if required in the manufacturer's instructions. The tack coat must be fully dry before sealant application.
- 4.9 The Contractor must document that the approved product is applicable to the sites to be crack sealed taking into account pavement type, climate for the time of year, moisture characteristics and crack widths.
- 4.10 Work method must be carried out as in Approved Product documentation.
- 4.11 Sealant must be applied between 40 mm and 50 mm in width.
- 4.12 Heating of hot sealant must be carried out within the binder temperature range as recommended by the Manufacturer.
- 4.13 Localised sealant overheating must be prevented by continuously agitating the sealant while heating and / or by using jacketed heaters with a calibrated temperature measuring device. Prolonged heating and reheating of sealant must be avoided.
- 4.14 Where there is evidence of deterioration in the performance of the sealant during the course of the work, additional test sections may be requested and tested in accordance with this Clause 4.

Non-complying Application of Sealant

- 4.15 If the Contractor's work is non-compliant, the Contractor's entitlement to payment is reduced by an amount commensurate with the proportion of non-compliant work.
- 4.16 Non-compliant work includes:
- over application of sealant (e.g. at crocodile cracking);
 - too large an application band width;
 - dripping of sealant where not required;
 - missing cracks;
 - wrong use of approved product for crack width and / or pavement type; and
 - not meeting other performance requirements.

5 Performance Requirements

Skid Resistance

- 5.1 The Skid Resistance of the sealant / work method must not be less than the SRV levels specified in Table RD-BP-C8 5-1.

Table RD-BP-C8 5-1 Skid Resistance British Pendulum (SRV)

Road Situation	Minimum Grip No.	Maximum Vehicle Speed k/h
Difficult sites - steep grades, traffic light approaches, tight bends, roundabouts.	0.50 – 0.55	60 – 80
Urban Arterial Roads	0.45	60
Rural Arterial Roads	0.45	110
Urban / Lightly Trafficked	0.40	60
Urban Arterial Expressway	0.45	90 – 100

5.2 If requested by Principal, the following procedure must be used to demonstrate compliance with this clause:

- a) Prepare test sections at 2 or more locations, one with a road surface with good texture and one with poor texture. Each individual test section must consist of 100 mm wide bands applied transversely across lane and longitudinally for 2 m in a wheel path.
- b) Arrange for Skid Resistance Tests to be carried out on each wheel path at each trial section which achieve the minimum requirements specified in Clause 5 "Performance Requirements".

Tackiness

5.3 Tackiness must be such that no pick up of sealant by vehicle tyre will occur after five minutes from application.

Long Term Crack Sealing Performance

5.4 Each lot of work undertaken must be documented on a single sheet and provided to the Principal and the DPTI Asphalt Engineer with the documentation required in Clause 8 "Verification Requirements and Records" for determination of long term performance by DPTI.

5.5 The contact details are: Asphalt Engineer, Level 5, 77 Grenfell Street, Adelaide 5001

6 Sampling and Testing

6.1 The Contractor must undertake sampling and testing in accordance with Table RD-BP-C8 6-1.

Table RD-BP-C8 6-1 Sealant Sampling and Test Requirements

Test Purpose	Frequency	Acceptance Limits
Product quality control	Minimum of one per contract	Table RD-BP-S3 2 1 Sealant Test Properties
Product identification	If requested by Principal	Part RD-BP-S3
Placed product skid resistance	If requested by Principal	Part RD-BP-C8 Clause 5.1

6.2 No separate payment will be made for the costs incurred by the manufacturer / Contractor when undertaking sampling and / or testing in accordance with this Clause 6.

6.3 At any time, the Principal may request an audit sample from the site to verify that the sealant is an approved product.

7 Hold Points

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

Document Ref.	Hold Point	Response Time
2	Provision of Contractor's Documentation	7 days

8 Verification Requirements and Records

8.1 The Contractor must provide a lot package report, which includes the following details, within 7 days of completion of the Lot:

- a) location of work – road name and location as appropriate;
 - b) Approved Product details;
 - c) daily or more frequent start and finish times;
 - d) pavement temperatures;
 - e) area of pavement treated in square meters (or length of crack sealing undertaken if specified);
 - f) sealant test results and litres used;
 - g) average estimated crack width;
 - h) non-conformances; and
 - i) any additional documentation relevant for long term performance evaluation.
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