

Master Specification

Part RD-BP-S3

Supply of Pavement Crack Sealant

September 2024



Government of South Australia
Department for Infrastructure
and Transport

Build.
Move.
Connect.

Document Information

Document Information	
K Net Number:	13506223
Document Version:	1
Document Date:	30/09/2024

Document Amendment Record

Version	Change Description	Date
0	Initial issue	31/08/2023
1	Updated cover page	30/09/2024

Document Management

This document is the property of the Department and contains information that is confidential to the Department. It must not be copied or reproduced in any way without the written consent of the Department. This is a controlled document and it will be updated and reissued as approved changes are made.

Contents

Contents	3
RD-BP-S3 Supply of Pavement Crack Sealant	4
1 General	4
2 Documentation	4
3 Materials	4
4 Test procedures	7

RD-BP-S3 Supply of Pavement Crack Sealant

1 General

- a) This Master Specification Part specifies the requirements for the supply of elastomeric or crumb rubber sealants used for sealing cracks in existing asphalt and spray seal pavements including:
 - i) the documentation requirements, as set out in section 2;
 - ii) the material requirements, as set out in section 3; and
 - iii) the test procedures as set out in section 4.
- b) The supply of elastomeric or crumb rubber sealants used for sealing cracks in existing asphalt and spray seal pavements must comply with the Reference Documents, including:
 - i) Austroads Test Method ATM-111 Handling Viscosity of Polymer Modified Binders (Brookfield Thermosel);
 - ii) Austroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER);
 - iii) Austroads Test Method ATM-122 Torsional Recovery of Polymer Modified Binders;
 - iv) Austroads Test Method AGPT-T131 Softening Point of Polymer Modified Binders;
 - v) AS 2008 Bitumen for pavements;
 - vi) AS 2341.12 Methods of testing bitumen and related roadmaking products, Method 12: Determination of penetration; and
 - vii) RMS T1181 Extension Test for Hot Poured Joint Sealants.

2 Documentation

2.1 Construction Documentation

In addition to the requirements of PC-CN3 “Construction Management”, the Construction Documentation must include the sealant work method as required by section 3.1d).

2.2 Quality Management Records

In addition to the requirements of PC-QA1 “Quality Management Requirements” or PC-QA2 “Quality Management Requirements for Major Projects” (as applicable), the Quality Management Records must include:

- a) identify any fillers used in the crack sealant required by section 3.2b);
- b) the crack sealant material test certificates required by section 3.2c); and
- c) the test results required by section 4b).

3 Materials

3.1 General

- a) The Contractor must ensure that sealants used for pavement crack sealing are approved products on the Department Approved Products List or are otherwise submitted for approval in accordance with PC-CN3 “Construction Management”.
- b) The Contractor must ensure that all supplied crack sealants comply with the requirements of this Master Specification Part.

- c) Where the Contractor seeks the Principal's approval of a crack sealant which is not included in the Department Approved Products List pursuant to section 3.1a), the Contractor must provide the following information in accordance with PC-CN3 "Construction Management":
 - i) documented work method for application of the proposed crack sealant, in accordance with the requirements of section 3.1d);
 - ii) evidence of successful trials of the proposed crack sealant, as required by section 3.1e); and
 - iii) documented evidence of compliance with section 3.2.
- d) The Contractor must ensure that the sealant work method contemplated by section 3.1c)i) is submitted as part of the Construction Documentation and includes:
 - i) all procedures and relevant documentation for the application of the crack sealant for each crack sealing operation type;
 - ii) the treated crack width range, types of sites, and bituminous surfacings suitable for this work method; and
 - iii) any other information required by RD-BP-C8 "Application of Pavement Crack Sealant".
- e) For the purposes of section 3.1c)ii), the Contractor must provide evidence that demonstrates that the proposed crack sealant is applicable to the types of sites and bituminous surfacings to be crack sealed by conducting trials and providing records and trial results to the Principal as part of the Construction Documentation submission required by section 3.1d).

3.2 Sealant

- a) The Contractor must ensure that all supplied crack sealant material:
 - i) is a standard class bitumen in accordance with the requirements of AS 2008 Bitumen for pavements, modified with an appropriate polymer or crumb rubber, designed to:
 - A. penetrate the crack;
 - B. adhere to the crack surface and side walls; and
 - C. resist further crack activity;
 - ii) meets the requirements of Table RD-BP-S3 3-1; and
 - iii) does not contain coal tar.
- b) The Contractor must identify any fillers used in the crack sealant in the Quality Management Records.
- c) The Contractor must provide test certificates for the supplied crack sealants to the Principal to DIT.tenders@sa.gov.au and as part of the Quality Management Records. The test certifications required by this section 3.2c) must be provided to the Principal no more than 12 months past their issue date.

Table RD-BP-S3 3-1 Sealant test properties

Test procedure	Test name	Binder property
Performance related properties		
Austrroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)	Consistency at 60°C using mould A	5000 Pa.s minimum
Austrroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)	Stiffness at 15°C using mould C	150 kPa maximum
Index properties		
Austrroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)	Elastic recovery at 60°C, 100 s	70% minimum
Austrroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)	Elastic recovery at 15°C, 100 s	50% minimum
RMS T1181 Extension Test for Hot Poured Joint Sealants	Extensibility	500% minimum
Handling properties		
Austrroads Test Method ATM-111 Handling Viscosity of Polymer Modified Binders (Brookfield Thermosel)	Viscosity at 165°C	0.8 Pa.s maximum
Production control properties		
Austrroads Test Method ATM-122 Torsional Recovery of Polymer Modified Binders	Torsional recovery at 25°C, 30s	40% - 80%
Austrroads Test Method AGPT-T131 Softening Point of Polymer Modified Binders	Softening point using glycerine bath	95°C minimum
AS 2341.12 Methods of testing bitumen and related roadmaking products - Determination of penetration	Penetration 25°C, 100 g, 5 s	130 dm maximum

4 Test procedures

- a) The Contractor must carry out testing to evidence compliance with section 3.2 in accordance with:
- i) the requirements of this Master Specification Part;
 - ii) the Contract Documents; and
 - iii) the test procedures listed in Table RD-BP-S3 4-1.
- b) The Contractor must submit results of the testing undertaken pursuant to section 4a) to the Principal as part of the Quality Management Records.

Table RD-BP-S3 4-1 Test procedures

Test	Test procedure
Shear properties of polymer modified binders (ARRB elastometer)	Test procedure as set out in Austroads Test Method AGPT-T121 Shear Properties of Polymer Modified Binders (ARRB ELASTOMETER)
Handling viscosity of polymer modified binders (Brookfield thermosel)	Test procedure as set out in Austroads Test Method ATM-111 Handling Viscosity of Polymer Modified Binders (Brookfield Thermosel)
Torsional recovery of polymer modified binders	Test procedure as set out in Austroads Test Method ATM-122 Torsional Recovery of Polymer Modified Binders
Softening point of polymer modified binders	Test procedure as set out in Austroads Test Method AGPT-T131 Softening Point of Polymer Modified Binders
Methods of testing bitumen and related road making products - Penetration 25°C, 100 g, 5 s	Test procedure as set out in AS 2341.12 Methods of testing bitumen and related roadmaking products - Determination of penetration
Extension test for hot poured elastomeric joint sealants	Test procedure as set out in RMS T1181 Extension Test for Hot Poured Joint Sealants