Sprayed Seals - Calibration of Bitumen Sprayers

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INTRODUCTION

An accurate and uniform rate of application of bituminous binder is an important element in undertaking effective sprayed seal work.

In the past, the calibration and certification of bitumen sprayers has been largely undertaken by individual State Road Authorities (SRAs) for operation within a particular State.

New procedures have now been introduced that set national standards for sprayer calibration and central administration of calibration test certificates.

Essential elements of the procedures are:
- National methods for inspection and testing of bitumen sprayer performance
- NATA accreditation of testing facilities and personnel
- Recording and listing of test certificates in national database.

IMPLEMENTATION

The procedures described in this issue are to be implemented on a state-by-state basis according to the requirements of each individual SRA. Users should check implementation status in their state of operation before seeking certificates under these procedures.

CALIBRATION PROCEDURE

General Performance Requirements

General performance requirements for bitumen sprayers are set out in NAASRA (1989) Bitumen Sprayers. That publication is due for review by Austroads. Nevertheless, the basic standards are still valid and sprayers must undergo a preliminary inspection for conformity to those standards before undergoing calibration. Such preliminary inspection includes:
- Sprayer identification (registration, make and model, and tank capacity)
- Sprayer tank interior (cleanliness)
- Instruments and equipment (fitted in accordance with specifications and with appropriate current calibration certificates, including tank dipstick)
- Operating controls (clearly marked and operational)

Key Summary

This issue of “pavement work tips” provides a guide to the procedures for the calibration and national certification of bitumen sprayers.

- Spraybar (complete with spraying jets and in good condition)
- Spraying jets (correct type and condition).

Calibration Test Methods

The following methods have been developed for inclusion with the Austroads Seal Design Test Method series. Austroads test methods may be viewed and downloaded free from the Austroads web site at www.austroads.com.au

- SDT 10.0 General introduction, list of methods and calibration test certificate
- SDT 10.1 Volumetric calibration
- SDT 10.2 Transverse distribution by fixed pit facility
- SDT 10.3 Transverse distribution by RTA field method
- SDT 10.4 Transverse distribution by BCA (NZ) field method
- SDT 10.5 Road speed calibration
- SDT 10.6 Viscosity of Test Oil

Procedure

For issue of a test certificate the following must be undertaken:
- Inspection and report on instruments and operating equipment (Check list – Appendix A of SDT 10.0).
- Volumetric calibration of pump output (SDT 10.1). Fluid used for volumetric testing must meet requirements of SDT 10.6.
- Transverse distribution test (SDT 10.2, 10.3 or 10.4).

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- Road speed and distance calibration (SDT 10.5).

An overview of the procedure for calibration and issue of test certificates is shown in Figure 1.

**CALIBRATION TEST CERTIFICATE**

**NATA Accreditation**

For a test certificate to be valid it must be stamped, dated and signed by a NATA facility that is accredited to operate the specific test equipment and carry out the nominated testing procedures.

The first NATA accreditation for inspection under these procedures was issued to the RTA Fleet Services Branch in January 2002.

**Validity**

Sprayer calibration certificates are valid for a period of 12 months.

**Distribution**

Distribution of sprayer calibration certificates may be undertaken by the relevant SRA or delegated to the testing agency. Distribution is as follows:

- Copy held by relevant SRA
- Copy to registered owner of sprayer
- Copy to AAPA for registration
- Copy kept by testing agency for record purposes as required by NATA.

**Published Listing**

AAPA will maintain a listing of all certified bitumen sprayers on its web site located at www.aapa.asn.au

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For more information on any of the construction practices discussed in "pavement work tips", please contact either your local AUSTROADS Pavement Reference Group rep. or AAPA: tel (03) 9853 3595; fax (03) 9853 3484; e-mail: info@aapa.asn.au. A complete list of "pavement work tips" issues is available on AAPA's website: www.aapa.asn.au Issues may be downloaded using Adobe Acrobat Reader. Copies may also be obtained from AAPA.

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This edition was prepared by John Rebbechi and Walter Holtrop in consultation with members of the National Bituminous Surfacing Research Group.

Austroads and AAPA believe this publication to be correct at the time of printing and do not accept responsibility for any consequences arising from the use of the information herein. Readers should rely on their own skill and judgement to apply information to particular issues.

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Figure 1. Overview of Procedure for Issue of Calibration Test Certificates

- Owner prepares sprayer for calibration
  - Calibration of instruments
  - Calibration of dip stick
  - Condition of tank, spraybars and spray jets
- Owner arranges inspection with NATA accredited agency
  - Calibration
    - Inspection and check list
    - Volumetric test
    - Transverse distribution test
    - Road speed and distance indicator
- Test certificates forwarded to relevant SRA for distribution, if required
  - Copy of sprayer calibration certificate to owner
  - Copy of sprayer calibration certificate to AAPA
- Details of certificate placed on AAPA web site