ASSESSMENT OF LIQUID ADHESION AGENTS

1 SCOPE

This method describes the process and tests to be undertaken in assessment of adhesion agents used for asphalt and sprayed sealing works.

2 SAFETY

This method does not attempt to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this method to establish appropriate occupational health and safety practices that meet statutory regulations.

Obtain a current MSDS for the adhesion agent being assessed. Storage and Handling of the adhesion agent shall be in accordance with the current MSDS.

3 REFERENCED DOCUMENTS

Australian Standards

AS 1141.50 – Plate Stripping Test

AS 2106 – Flash Point (Pensky Martens Closed Cup)

4 DEFINITIONS

(a) **Adhesion agent** (**liquid**) - is a surfactant that is incorporated into the bituminous binder to promote adhesion between the bituminous binder and aggregate.

(b) **Pourability** - describes how readily an adhesion agent can be poured from a container at low temperatures.

(c) **Stripping consistency** - is a measure of the ability of the adhesion agent to maintain adhesive properties after mixing in a bituminous binder and being held at elevated temperatures.

5 APPARATUS

(a) A thermostatically controlled **oven** with good ventilation capable of maintaining a temperature within the range of 180 to 190ºC.

(b) **Timer** accurate to within 0.5 minutes.

(c) **Graduated measuring cylinder** of at least 250 mL capacity.

(d) **250 mL glass beaker**.

(e) **Thermometer** with a range of at least 0 to 200ºC and readable to 0.1ºC and with an uncertainty of less than or equal to 0.3ºC.

(f) **Glass stirring rod**.

6 PROCEDURE

6.1 Visual Assessment

(a) Obtain a sample of the adhesion agent of approximately 200 mL.

(b) Transfer the sample into a 250 mL graduated measuring cylinder and allow it to stand undisturbed at ambient conditions within the laboratory and out of direct sunlight for at least one week.

(c) Visually assess the contents of the measuring cylinder to determine the following:

- Settlement – any separation or segregation of the sample.
- Caking – any crusting, hardening or formation of a crystalline appearance on or within the sample.

(d) Record whether or not caking or settlement has occurred.

(e) Stop further assessment of the adhesion agent if the sample exhibits caking or settlement.

6.2 Pourability

(a) Obtain a sample of adhesion agent of approximately 200 mL.

(b) Transfer the sample into a 250 mL laboratory beaker.

(c) Condition the sample by gently stirring the contents of the beaker with a glass stirring rod for approximately 1 minute.

(d) Reduce the temperature of the sample to 5 ± 1°C.

(e) Pour the sample from the beaker and assess how readily the sample flows using the following criteria:

a) Appears as a solid, does not pour
b) Viscous liquid, pours very slowly
c) Fluid, pours readily

(f) Record the Pourability as Criteria a, b or c.

6.3 Stripping Consistency

(a) Use granite aggregate obtained from either of the Boral or Holcim quarries in Perth. The aggregate shall be in a clean, washed and dry condition.

(b) Prepare test portions of Class 170 bitumen and adhesion agent in accordance with AS 1141.50 with the following variation to Clause 6.3 (b) of AS 1141.50.

(c) Continue heating the bitumen until it has reached 180ºC. Add 0.5% by mass of the adhesion agent to the bitumen and stir for approximately two minutes. Repeat this process for one additional test portion at a dosage rate of 0.3% by mass. Place each test portion in an oven maintained at a temperature in the range of 180ºC to 190ºC, for a period of:

a) 1 hour (0.5% dosage)
b) 8 hours (0.3% dosage)
c) 24 hours (0.5% dosage)

(d) Remove each test portion from the oven after the relevant conditioning period and proceed with testing in accordance with AS 1141.50.

(e) Record the results for stripping for each of the conditioning periods.

6.4 Flashpoint

Determine the closed cup flashpoint of the sample in accordance with AS 2106.

7 REPORTING

The following shall be reported:

(a) Visual Assessment – whether or not caking and settlement has occurred.

(b) Pourability – Criteria a,b or c.

(c) Flashpoint in degrees C

(d) Stripping Consistency

(e) Stripping as per AS1141.50 for each dosage rate and conditioning period.

8 ISSUING AUTHORITY

Document Owner
Bituminous Product Consultant

9 REVISION STATUS RECORD OF THIS ISSUE

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2	8	Update Issuing Authority