

Australian Standard[®]

Methods of testing bitumen and related roadmaking products

Method 3: Determination of kinematic viscosity by flow through a capillary tube

PREFACE

This Standard was prepared by the Standards Australia Committee on Bitumen and Related Products (for Roadmaking), to supersede AS 2341.3—1980.

Symbols for units have been updated where necessary, the table on viscosity of calibration fluids (Table 3) has been completely revised and Clause 11 dealing with precision data has also been revised as a result of inter-laboratory testing.

METHOD

1 SCOPE This Standard sets out procedures for the determination of kinematic viscosity of bituminous materials having kinematic viscosities in the range 2 mm²/s to 300 000 mm²/s (approximate dynamic viscosities 0.002 Pa.s to 300 Pa.s) using two different types of reverse flow capillary tube viscometers. In particular the method is applicable to residual bitumen for pavements (as specified in AS 2008), cutback bitumen (as specified in AS 2157) and road tar for pavements (as specified in AS 1507).

2 REFERENCED DOCUMENTS The following documents are referred to in this Standard:

AS

1507 Road tars for pavements

2008 Residual bitumen for pavements

2157 Cutback bitumen

2341 Methods of testing bitumen and related roadmaking products

2341.1 Part 1: Precision data—Definitions

ASTM

E 1 Specification for ASTM thermometers

IP Methods for analysis and testing, Part 1, Vol.2, Appendix A

3 PRINCIPLE The time for a fixed volume of a liquid to flow through a capillary tube, under an accurately reproducible head and at a closely controlled temperature, is measured. The kinematic viscosity is then calculated by multiplying the flow time by a viscometer calibration factor.

NOTES:

- 1 Results from the method can be used to calculate dynamic viscosity where the density of the liquid at the test temperature is known or can be calculated.
- 2 Flow times will be too long with the instruments described in this Standard for measurement of the viscosity above 300 Pa.s residual bitumens at 60°C.