

Australian Standard™

AS 2341.14—2013

Methods of testing bitumen and related roadmaking products

Method 14: Determination of flashpoint of bitumen

PREFACE

This Standard was prepared by the Standards Australia Committee CH-025, Bitumen and Related Products (for Roadmaking), to supersede, AS 2341.14—1992, *Methods of testing bitumen and related roadmaking products*, Method 14: *Determination of flashpoint of residual bitumen*.

After consultation with stakeholders in both countries, Standards Australia and Standards New Zealand decided to develop this Standard as an Australian Standard rather than an Australian/New Zealand Standard.

This Standard is based on IP 35, *Determination of Open Flash and Fire Point—Pensky-Martens Method*, and is equivalent to ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester*.

METHOD

1 SCOPE

This Standard sets out a procedure for the determination of the open cup flashpoint of bitumens over a range of 200°C to 350°C.

2 SAFETY DISCLAIMER

WARNING: THE USE OF THIS AUSTRALIAN STANDARD MAY INVOLVE HAZARDOUS MATERIALS, OPERATIONS AND EQUIPMENT. THIS AUSTRALIAN STANDARD DOES NOT PURPORT TO ADDRESS ALL OF THE SAFETY ISSUES ASSOCIATED WITH ITS USE. IT IS THE RESPONSIBILITY OF THE USER OF THIS AUSTRALIAN STANDARD TO ESTABLISH APPROPRIATE SAFETY AND HEALTH PRACTICES AND DETERMINE THE APPLICABILITY OF REGULATORY LIMITATIONS PRIOR TO USE.

3 REFERENCED DOCUMENTS

AS

2106 Methods for the determination of the flash point of flammable liquids (closed cup)

2106.2 Method 2: Determination of flash point—Pensky-Martens closed cup method

AS/NZS

2341 Methods of testing bitumen and related roadmaking products

2341.1 Part 1: Precision data—Definitions

2341.21 Method 21: Sample Preparation

4 APPARATUS

The following items of apparatus are required:

- (a) The standard Pensky-Martens closed tester, as specified in AS 2106.2, with the following modifications:
 - (i) The cover of the cup shall be replaced by a clip that encircles the upper rim of the cup and carries the thermometer and test flame.
 - (ii) The tube carrying the thermometer shall have its centre on a radius at approximately 90° to the radius passing through the point of attachment of the test flame, and shall be of such height that when the thermometer is in position its bulb shall be in the vertical axis of the cup and 13 mm below the filling line.
 - (iii) The test flame shall be fixed at the vertical axis of the cup and at a level with the upper edge of the cup.
- (b) Thermometer ASTM 10C, as specified in AS 2106.2.

5 TESTING CONDITIONS

The test shall be conducted in a draught free environment, which is darkened sufficiently for the flash to be readily discernible.

A draught shield may be used to prevent draughts from disturbing the vapours above the test cup. This shield should surround at least three sides of the test cup.

In the case of samples that may have objectionable vapours, the flashpoint apparatus and draught shield may be used in a laboratory fume cupboard. Where the shielding is used in a fume cupboard, the draught of the fume cupboard shall be adjusted and be designed so that air currents do not disturb the vapours emitted from the test cup.

6 PROCEDURE

The procedure shall be as follows:

- (a) Thoroughly clean and dry all parts of the cup and its accessories. Remove all traces of solvent used to clean the apparatus.
- (b) Prepare the sample in accordance with AS/NZS 2341.21. Fill the cup with the sample up to the level indicated by the filling mark.
- (c) Place the clip carrying the thermometer and test flame on the cup and place the entire assembly into the flashpoint apparatus. Ensure that the locating devices are properly engaged. Insert the thermometer.
- (d) Light the test flame and adjust it so that it is approximately 4 mm in diameter.
- (e) Apply heat at such a rate that the temperature recorded by the thermometer increases by not less than 5°C nor more than 6°C per minute, and observe the surface of the material carefully. Mechanical agitation shall not be applied.
- (f) Take the flashpoint as the temperature (to the nearest 1°C) when a flash first appears at any point on the surface of the material. No correction shall be applied for the exposed mercury thread.
- (g) Round the flashpoint to the nearest 10°C.