



*Austroads*

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## Flash Point of Polymer Modified Binders

### 1. Commentary

#### 1.1 Preface

This test method was prepared by the Bituminous Surfacing Working Group (BSWG) on behalf of the Austroads Pavements Task Force (PTF). Representatives of Austroads, the Australian Road Research Board (ARRB) and the Australian Asphalt Pavement Association (AAPA) have been involved in the development and review of this test method.

This test method is intended to indicate fire risk and the presence of volatile oils in polymer modified binders (PMBs). Minimum flash points are specified to minimise the risk of flammable vapours accumulating in the ullage space of transport and storage containers with consequent risk of explosion.

The flash point of a binder is determined by slowly heating the material in an open metal cup until a temperature is reached at which vapours on the surface of the material are ignited or 'flash' in the presence of a test flame.

#### 1.2 Scope

This test method sets out the procedure for the determination of the flash point of PMBs. This test method is applicable to PMBs used in the construction and maintenance of pavements (as specified in ATS 3110).

#### 1.3 Further Development

There are no further plans for the development of this test method.

#### 1.4 Safety Disclaimer

**Warning:** The use of this Austroads test method may involve hazardous materials, operations and equipment. This Austroads test method does not purport to address the safety issues associated with its use. It is the responsibility of the user of this Austroads test method to establish appropriate work health and safety practices and determine the applicability of regulatory limitations prior to use.

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## 2. References

The following documents are referred to in this method:

### Austrroads

- AGPT/T101      *Method of sampling polymer modified binders, polymers and crumb rubber.*
- AGPT/T102      *Protocol for handling modified binders in preparation for laboratory testing.*
- ATS 3110        *Supply of polymer modified binders.*

### Australian/New Zealand Standards

- AS/NZS 2341.1   *Methods of testing bitumen and related roadmaking products: precision data – definitions.*
- AS 2341.14      *Methods of testing bitumen and related roadmaking products: determination of flashpoint of bitumen.*

### ASTM

- D92              *Standard test method for flash and fire points by Cleveland open cup tester.*

## 3. Apparatus

- (a) The required apparatus is given in AS 2341.14 or ASTM D92.
- (b) If AS 2341.14 is used to determine flash point, then other thermometric devices may be used to measure temperature provided that their accuracy, precision and sensitivity are equal to or better than the thermometer prescribed in AS 2341.14.

## 4. Procedure

### 4.1 Sample Preparation

Samples for testing shall be provided in accordance with AGPT/T101 and AGPT/T102.

### 4.2 Determination of Flash Point

- (a) Determine the flash point of the binder in accordance with the method set out in AS 2341.14 or ASTM D92.
- (b) If AS 2341.14 is used to determine flash point then the thermometer may be replaced by another type of thermometric device which meets the requirements of Section 3(b).
- (c) If ASTM D92 is used to determine flash point, round the corrected flash point result to the nearest 10 °C.

## 5. Reporting

Report the flash point result, in °C, to the nearest 10 °C.

## 6. Precision

The following criteria should be used for judging the acceptability of results with 95% probability (see AS/NZS 2341.1) using flash point results which are obtained using AS 2341.14 or ASTM D92 which are rounded to the nearest 1 °C:

- (a) Repeatability: Duplicate flash point determinations by the same operator using the same equipment shall not be considered suspect unless they differ by more than 8 °C.
- (b) Reproducibility: Flash point determinations submitted by each of two laboratories shall not be considered suspect unless they differ by more than 18 °C.

## Amendment Record

Amendment No.	Clauses amended	Action <sup>1</sup>	Date
1	Commentary Page Footer and header Applied revised test method number Applied new styles	New Format Format Format	June 2005
2	New test method number applied	Substitution	March 2006
3	Foreword	Removed	February 2020
	Safety Disclaimer	New	
	Safety precaution statement	Removed	
	References	Substitution	
	Apparatus/Procedure – allows both AS 2341.14 and ASTM D92 to be used to perform the test. Allows an equivalent thermometric device to be used with AS 2341.14 in addition to the specified thermometer	Substitution	
	Reporting – flash point results now rounded to the nearest 10 °C to be consistent with AS 2341.14	Substitution	
	Precision statements included	New	

### <sup>1</sup>Key

Format	Change in format
Substitution	Old clause removed and replaced with new clause
New	Insertion of new clause
Removed	Old clauses removed