

Australian/New Zealand Standard™

Methods of testing bitumen and related roadmaking products

Method 20: Determination of sieve residue for bituminous materials

AS/NZS 2341.20:2016

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee CH-025, Bitumen and Related Products for Roadmaking, to supersede AS/NZS 2341.20:1998.

The most significant changes are the removal of the option for special conditions for tar and removal of the nomination of solvents suitable for use with tar.

METHOD

1 SCOPE

This Standard sets out a method for determining the proportion of bituminous material which is retained on a test sieve when it is strained through the mesh with the aid of an appropriate solvent.

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

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS

1152 Specification for test sieves

AS/NZS

2341 Methods of testing bitumen and related roadmaking products

2341.21 Method 21: Sample preparation

3 SOLVENT

The following solvent is required:

A solvent compatible with the sample material (i.e. a volatile liquid which will not cause agglomeration or gellation of the bulk of the solution and inhibit straining through the sieve). For most bituminous materials, a commercial grade of toluene or a commercial solvent cut similar to toluene is satisfactory. The solvent shall be free from visible particulate matter. The residue on evaporation for the chosen solvent shall be $\leq 0.005\%$.

WARNING: AS TOLUENE AND SIMILAR SOLVENTS CAN BE TOXIC AND HIGHLY FLAMMABLE, ALL WORKING AREAS SHOULD BE ADEQUATELY HOODED AND FREE FROM SPARKS AND FLAME.

4 APPARATUS

The following apparatus is required:

- (a) *Sieve*—complying with AS 1152, fitted with a wire mesh having an aperture size of 75 μm in a frame of approximately 75 mm or 100 mm diameter.
NOTE: Sieves with other aperture sizes such as 150 μm may be used if explicitly specified.
- (b) *Sample beaker*—a glass beaker of 400 mL capacity.
- (c) *Sieving beaker*—a glass beaker of suitable size so that the sieve sits neatly into the flanged rim of the beaker.
- (d) *Watch glass*—with larger diameter than the sieve. The diameter of the watch glass should be sufficient so that the base of the sieve can be stably positioned on the watch glass.
- (e) *Wash bottle*—suitable for the solvent used.
- (f) *Stirring rod*.
- (g) *Measuring cylinder*—of 100 mL capacity.
- (h) *Desiccator*—with desiccant; indicating silica gel type recommended.
- (i) *Drying oven*—thermostatically controllable in the range 105°C to 110°C.
- (j) *Balance*—not less than 200 g capacity, with a limit of performance of 0.001 g or better.

5 PREPARATION OF TEST SPECIMEN

The sample shall be prepared in accordance with AS/NZS 2341.21.

6 PROCEDURE

The procedure shall be as follows:

- (a) Wash the sieve with the solvent, dry the sieve and the watch glass in the oven, and transfer the sieve and the watch glass to the desiccator to allow to cool. Weigh the sieve together with the watch glass to 0.001 g (m_1).
- (b) Weigh 50.0 $\pm$ 0.2 g of the test specimen into the sample beaker.
- (c) Decant 100 mL of solvent into the measuring cylinder.
- (d) Pour a portion of the solvent (10 mL to 15 mL) into the sample beaker and stir with the stirring rod until almost homogeneous. Add the remaining solvent gradually and continue stirring.

NOTE: Gentle heat may be used to accelerate the dissolution process. Ensure the mixture does not boil. Cool the mixture to room temperature before continuing to Clause 6(e).