



**Transport**  
Roads & Maritime  
Services

# Test method T536

Determination of viscosity by the  
Epprecht-Rheomat 15

NOVEMBER 2012



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## Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added. AS No. altered.to 2341.4 Safety Notes added	D.Dash	Jan 2000
Ed 2/ Rev 0	All	Reformatted RMS template	J Friedrich	Nov 2012

Note that Roads and Maritime Services is hereafter referred to as 'RMS'.

The most recent revision to Test method T536 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

# Test method T536

## Determination of viscosity by the Epprecht-Rheomat 15

### 1. Scope

This test method sets out the procedure for the determination of the viscosity of bituminous materials by the Epprecht Rheomat 15. This test method conforms to the procedure set out in the Australian Standard AS 2341.4

### 2. Safety Notes

A poster describing the action to be taken in the event of bitumen burns must be displayed in the vicinity of the bitumen pouring area(s)

Use either tongs or heat resisting gloves when handling hot bitumen. Loosen or puncture lids before heating containers. Examine cold samples for signs of water.

Remove all visible water. Wear spectacles when heating samples suspected of containing water. Cleaning solvents such as toluene may be toxic, handle such solvents in a fume cabinet, consult safety data sheet.

### 3. Apparatus

- (a) A Rheomat 15 Rheometer as specified in AS 2341.4 complete with the five sample cups and measuring bobs (A to E), the MS-O bob and cup assembly and "Viscotemp" high temperature assembly.
- (b) A waterbath.
- (c) Heater with temperature controller accurate to  $\pm 0.1^{\circ}\text{C}$  within the operating range, and circulating pump.
- (d) Partial immersion thermometer accurate to  $\pm 0.1^{\circ}\text{C}$ .
- (e) Support stand.
- (f) A  $150\mu\text{m}$  A S sieve.

### 4. Preparation of Apparatus

- (a) The sample cups and bobs are cleaned with solvents only, with occasional polishing with a non-abrasive soap and cleaner.
- (b) Bring the water bath to the constant temperature of test  $\pm 0.1^{\circ}\text{C}$  before the determination.

### 5. Preparation of Samples

- (a) Warm the sample on the hotplate to a fluid state with constant stirring and if necessary strain through a  $150\mu\text{m}$  sieve.
- (b) The sample sizes to be used with the various test assemblies are as follows.

Assembly	Volume of Sample Required (ml)
A	120
B	80
C	20
D	8
E	9

## 6. Procedure

### 6.1 Measuring systems A to E

- Select the appropriate test assembly and place the required amount of well stirred homogeneous sample in the sample cup.
- Place the bob in the cup and then connect the bob to the measuring unit and ensure that the coupling is in the correct position and allow to stand for at least 1 hour before commencing the determination.
- Turn on both switches of the frequency generator and wait for 20 seconds.
- Turn the speed selector to 1 and take a reading from the dial. Proceed through the speeds as fast as possible making use of the damping mechanism. The speed chosen should be such that a minimum of 30 is obtained.
- When the maximum number of readings has been taken, turn down the speed selector through the speeds, using the damping mechanism, and taking readings if required.
- When all readings have been taken, turn off the frequency generator and remove the cup and bob from the stand for cleaning.

### 6.2 Measuring system MS - O

Use the same procedure as above except that when the bob is in the cup, place a key on the cup and raise the bob so that its top edge just touches the lower edge of the key.

## 7. Calculations

- Calculate the consistency of the material by means of the readings obtained at the various speeds, from the chart with the various factors for speed setting and system on it, and the density at the test temperature.
- Translate the readings directly into dynamic units (pascal seconds) or convert to kinematic units ( $\text{mm}^2$  per second) by dividing by the density ( $\text{kg/L}$ ).

## 8. Reporting

Report the viscosity and the temperature of test together with the designation of the cup and bob used in the determination.