



Transport
Roads & Maritime
Services

Test method T569

Compatibility of bitumen emulsion with local water

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Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		New Issue	D.Dash	July 1999
Ed 2/ Rev 0	All	Reformatted RMS template	J. Friedrich	November 2012

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

The most recent revision to Test method T569 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T569

Compatibility of bitumen emulsion with local water

1. Scope

This test method sets out the procedure for determining the compatibility of a bitumen emulsion with a sample of water from a particular source; hence the suitability of water from a local supply for use with a particular bitumen emulsion may be evaluated.

2. Apparatus

- (a) A measuring cylinder of 200 mL capacity.
- (b) Glass beakers 400 mL, watch glasses, stirring rods.
- (c) A balance of not less than 200 g capacity, readable and accurate to 5 mg (may be top loading type).
- (d) Test sieves with frames of the following approximate dimensions; diameter 75 mm, depth 50 mm and with a 10 mm deep ring flange below the sieve cloth.
The sieve shall be fitted with 150 μm woven wire mesh conforming to the requirements of Australian Standard AS 1152. Preferably the test sieve should fit neatly into the flanged rim of a 400 mL beaker.
- (e) A thermostatically controlled oven with good air circulation capable of maintaining a temperature within 105°C to 110°C.
- (f) A top loading balance accurate to at least 0.1 g (optional).

3. Materials

- (a) Test sample of bitumen emulsion if evaluating water or, Test samples of local water if testing bitumen emulsion.
- (b) Protective liquid compatible with the emulsion, e.g.
 - (i) for anionic bitumen emulsion, sodium or potassium oleate solution, approximately 2 per cent by mass in water.
 - (ii) for cationic bitumen emulsion, dilute hydrochloric acid, 0.5 mL 35% acid made up to one litre (a small quantity, say 0.1% of cationic surfactant may be added to the acidified water solution to improve protective properties).

4. Procedure

- (a) Thoroughly clean and dry a 400 mL beaker. Weigh to the nearest 0.1g. Designate this mass M_1 .
- (b) Thoroughly stir emulsion and place 50 mL in the 400 mL beaker. Weigh and designate this mass M_2 .
- (c) Gradually add 150 mL of the test water sample, with constant stirring, to the emulsion. The temperature of all materials should be 23°C \pm 2°C.
- (d) Place a watchglass over the beaker and allow the mixture to stand at 23°C \pm 2°C for 2 hours.
- (e) Clean and dry a test sieve. Place on a watchglass and dry in the oven. Cool and weigh to the nearest 5 mg. Designate this mass M_3 .
- (f) Place sieve over a 400 mL beaker, and wet with the appropriate protective liquid. Stir the emulsion mixture thoroughly and quickly pour through the sieve.
- (g) Rinse out the residue from the beaker with portions of the protective liquid and pour washings over sieve mesh. Continue washing until drainings are no longer discoloured.

- (h) Place the test sieve back onto the watchglass and dry in the oven. Cool and weigh. Designate this mass M_4 .

5. Calculations and Report

- (a) Calculate the precipitated emulsion P as a percent by weight of the original emulsion sample:

$$P = \frac{M_4 - M_3}{M_2 - M_1} \times 100$$

- (b) Report the compatibility for Emulsion, C as
(c) $C = 100 - P$

6. Notes on Method

- (a) The method may not be applicable to emulsions which have previously failed the Sieve Test (T534).
(b) The dilution ratio of water to emulsion may be altered to test compatibility with respect to a particular requirement.
(c) The pH of the test water sample may be altered by trial additions of acid or alkali as appropriate and then retested with the emulsion to determine the pH adjustment required to facilitate compatibility with the test emulsion.