



Transport
Roads & Maritime
Services

Test method T712

Sediment in fuel oils by extraction

NOVEMBER 2012



Revision Summary

Ed/Rev Number	Clause Number	Description of Revision	Authorisation	Date
		Reformatted and Revision Summary Added. 3. Caution note altered 4(b) Caution note deleted	D.Dash	Jan 2000
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 T712 (other than minor editorial changes) are indicated by a vertical line in the margin as shown here.

Test method T712

Sediment in fuel oils by extraction

1. Scope

This test method sets out the procedure for determining the amount of sediment in fuel oil which is insoluble in analytical grade toluene. The procedure is derived from the American Society for Testing and Materials, Standard Designation D743 - 65 and Institute of Petroleum, Standard Designation IP 53/55 Tentative.

2. Apparatus

- (a) Extraction apparatus consisting of the following.
- (b) Extraction flask - a wide mouth conical flask of 1 litre capacity.
- (c) Condenser - a block tin coil condenser.
- (d) Extension Thimble - a fused alumina (porous grade) thimble, 25 mm in diameter by 70 mm in height, of mass 13 g to 17 g, and having two small holes for insertion of the suspension wire. The thimble shall be suspended from the condenser coil by means of a platinum wire so that it hangs approximately 45 mm above the extraction solvent and 45 mm below the condenser coil.
- (e) For routine tests, thimbles may be used for a number of successive determinations on different samples, the extraction to constant weight on one sample being considered as the preliminary extraction for succeeding determination. When the accumulation of sediment becomes excessive, the combustible portion shall be removed by heating to dull red heat (preferably in an electric muffle furnace) and the thimble shall be subjected to a preliminary extraction before being used for another determination.
- (f) Source of heat - suitable to vaporize toluene such as a steam bath or electric hot plate.
- (g) A balance of not less than 200 g capacity, accurate and readable to 0.2 mg.

3. Solvent

Analytical grade toluene.

4. Procedure

- (a) Before use, extract the fused alumina thimble with analytical toluene allowing the solvent to drip from the thimble for at least one hour. Then dry the thimble for one hour at a temperature of 100°C to 110°C. Cool to room temperature and weigh to the nearest 0.2 mg. Repeat the extraction until the masses of the thimble after two successive extractions do not differ by more than 0.2 mg.
- (b) Place an estimated 10 g portion of the sample in the thimble as soon as possible after the sample has been thoroughly mixed. Do not attempt to adjust this estimated 10 g portion to any exact predetermined amount. Weigh to the nearest 0.01 g. Place the thimble in the extraction apparatus and extract with analytical grade toluene until the solvent dropping from the thimble is colourless.
- (c) Adjust the rate of extraction so that the surface of the mixture of oil and toluene in the thimble does not rise higher than a point within 20 mm of the top.
- (d) After extraction is completed, dry the thimble for an hour at 100°C to 110°C, cool and weigh to the nearest 0.1 mg. Repeat the extraction, allowing the solvent to drip from the thimble for 60 -75 minutes; dry the thimble, cool and weigh as above. Repeat the extraction for a further 1 hour period, if necessary, until the masses of the dried thimble and sediment do not differ by more than 0.2 mg after two successive extractions.

5. Calculations and Reporting

Calculate the mass of sediment as a percentage of the original sample and report it to the nearest 0.01 per cent as Sediment by Extraction.