



Moisture Determination in Fuel Oils

General

Mineral oils and products with a similar structure often contain long chains or aromatic compounds which are only soluble to a limited extent in methanol. Solubility is improved by the addition of chloroform, toluene or xylene. Chloroform is a good solvent for petroleum products and can be used together with methanol, whereby the methanol content is at least 25%. A solvent mixture consisting of methanol, chloroform and xylene is to be favoured with this product. The amounts used may be changed, we recommend a mixture with a volume ratio of 1:1:1.

Reagent

Titrant: HYDRANAL-Titrant 2
 Working medium: 15 ml
 HYDRANAL-Solvent, 15 ml chloroform + 15 ml xylene

A one-component reagent can be used as well:

Titrant: HYDRANAL-Composite 2
 Working medium: 15 ml methanol,
 15 ml chloroform + 15 ml xylene

Primary Settings

Method ID:	Fuel Oil
Use oven:	No
Auto start:	Yes
Blank:	No
Uncert. calc.:	Yes
Reproducibility:	0.1%

Parameters

Stirring speed:	600 rpm
Max. bur. speed:	150%/min
Min. titr. time:	00:30 (min:s)
Max. titr. time:	00:05 (h:min)
Max. volume:	10 ml

Sample

Sample ID:	Yes
Sample unit:	g
Advised amount:	10.00 g
Uncertainty:	0.001 g
Sample factor:	1
Result unit:	mg/g
Number of digits:	6
Quality control:	No

Procedure

The sample is administered with a plastic syringe with a needle.

Weigh by difference.

Sample amount: 10 g

Comments

The solvent must be renewed after each analysis.

In order to obtain accurate measurements, we recommend adjusting the sample size and choosing the titre so that the delivered titrant amount is at least 1 ml.

However, the solubility of some samples limits the amount that can be injected into the KF cell. If the sample has a low moisture content, the small sample size will mean that the amount of titrant needed may consequently be lower than 1 ml.

The uncertainty on the delivered volume is quite constant so the only consequence is to increase the relative uncertainty on the result. This is taken into account for the results in the uncertainty calculations.

Results

Mean: 0.084 ±0.012 mg H₂O/g
 (K=2, 4 replicates)
 K: coverage factor