

Water content in petroleum products and additives



Oven method as per ASTM D6304 makes coulometric Karl Fischer titration easier than ever

Highlights

- Less solvents needed
- Better reproducibility of results
- Walk-away automation for multiple samples

The standard method has become much easier

Do you use coulometric titration to determine water content in petrochemical samples and have to comply with ASTM D6304? If so, you are probably all too aware that there are some challenges:

- Poor solubility of highly viscous samples such as lubricant oils, hydraulic oils, etc.
- Frequent cleaning of the titration cell required
- Side reactions due to the presence of additives in the sample
- Considerable amounts of solvents required

All of these disadvantages negatively affect cost efficiency and performance of your analysis.

Revised ASTM D6304 includes automated oven method



Addressing the mentioned challenges, **ASTM has revised method D6304**. The standard method now includes the oven method: Here, the sample matrix does not come into contact with the titration cell at all. Instead, the samples are introduced into single-use vials, which are put on the rack of an oven sample processor.

Heating vial by vial, the water contained in the samples is evaporated. A constant stream of an inert carrier gas is used to bring the water fraction into the titration cell, where it is determined. The sample matrix stays in the vials, which are simply disposed of after the titration.

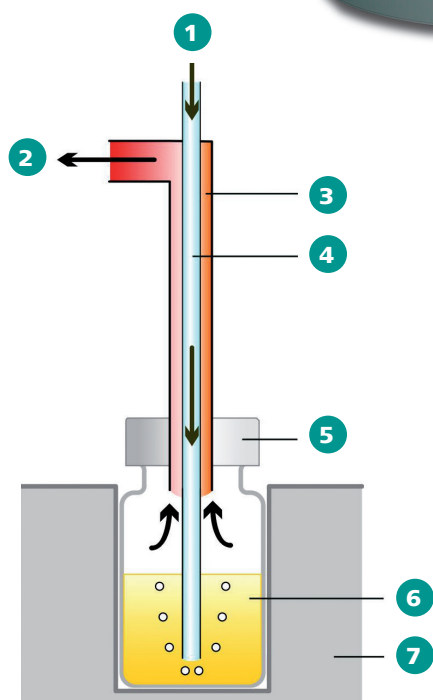
The benefits of this method are considerable

- No contamination of the KF titration cell
- No matrix interferences
- Less solvents needed
- More reliable analysis and better reproducibility of results
- Automation possible for serial, completely unattended determination of multiple samples

874 Karl Fischer Oven Sample Processor – fully automated determination of water content in up to 35 samples

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Using the 874 Karl Fischer Oven Sample Processor you can analyze the water content in up to 35 samples fully automatically. Place the vials on the rack, start the method, and dedicate your valuable time to other tasks in the lab.



Principle of the method

At the heart of the 874 Karl Fischer Oven Sample Processor is an oven. In the heating chamber of this oven, the sample is heated. As a result, the water in the sample evaporates. The water fraction thus released from the sample is carried by an inert carrier gas into the Karl Fischer titration cell, where the water is titrated.

- | | |
|---|--|
| 1 | Dry carrier gas |
| 2 | Carrier gas with the released moisture |
| 3 | Hollow outlet needle |
| 4 | Hollow inlet needle |
| 5 | Septum closure |
| 6 | Sample |
| 7 | Oven |

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