

# Water determination in oil and fuel samples

Conform to standard ASTM D 6304



**aquamax KF**  
**PRO OIL**

made by **ECH**

# aquamax KF

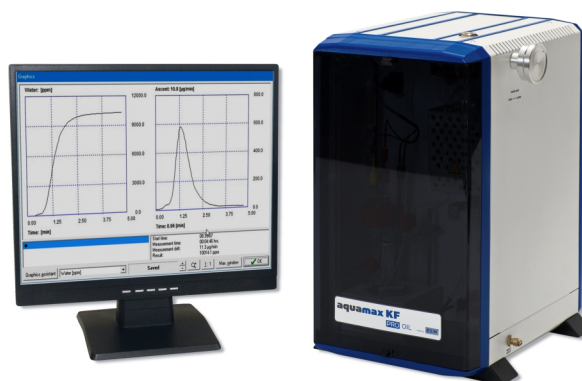
## PRO OIL

### Water determination in oil and fuel samples

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#### Product description

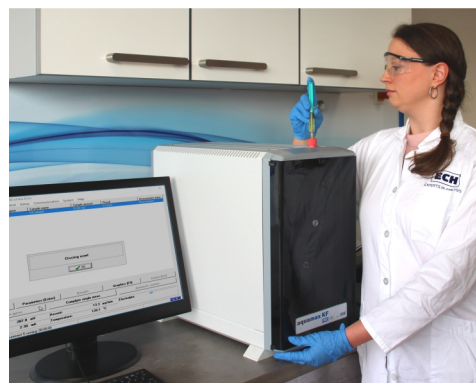
The Aquamax KF PRO Oil is the perfect instrument to measure ppm water in oils and fuels without the worry of interference side reactions caused by additives or sulphur/mercaptans. The unique "closed loop" principle means no additional carrier gas is necessary. Directly injecting the sample in to the oven means no blank value is required, making the Aquamax KF PRO Oil a truly accurate, trace level water in petroleum products titrator. The heating chamber is automatically emptied after each measurement. Learn more about your oils by using the temperature ramping program. This unique ECH feature allows you to see all various types of bonded water, making the Aquamax KF Pro Oil the perfect tool in the R & D, Refining, Used Oil analysis laboratories and lubricant blending plants. All Aquamax KF PRO Oil parts are totally enclosed making this system completely safe and robust for use in the demanding petroleum industry. The ECH technique allows a very long reagent life, because its capacity can be used completely.



The Aquamax KF PRO Oil fulfils the requirements of the standard ASTM D 6304: Standard Test Method for Determination of Water in Petroleum Products, Lubricating Oils and Additives by Coulometric Karl Fischer Titration.

#### Applications

- Transformer oils
- Gasoline
- Insulating oils
- Hydraulic oils
- Diesel
- Silicone oils
- Engine oils
- A1 Jet fuel
- Lubricating oils
- Gear oils
- Military jet fuel
- Biopetroleum
- Crude oils
- Bio fuel
- Biological oils
- Fuel oils
- Petroleum products



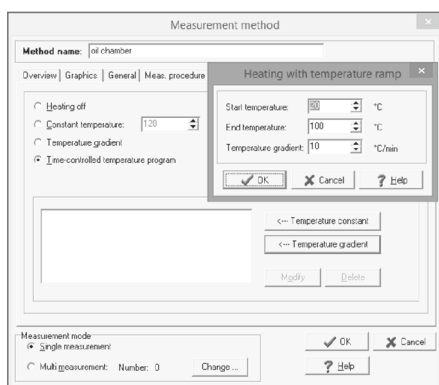
#### Advantages

- Closed loop principle does not allow methanol to evaporate from the KF solvent
- Reagent capacity is used completely
- Additive and Sulphur side reactions minimized
- Automatic emptying of the heating chamber after each measurement
- Temperature ramping program allows you to distinguish between various types of bonded water
- No blank value meaning true ppm accuracy
- Aquamax KF PRO Oil can be used in the laboratory or used as part of a mobile lab when taking a measurement from the sample point is critical
- Compact and rugged device
- Can also be used for the measurement of liquid samples by direct injection into the titration cell

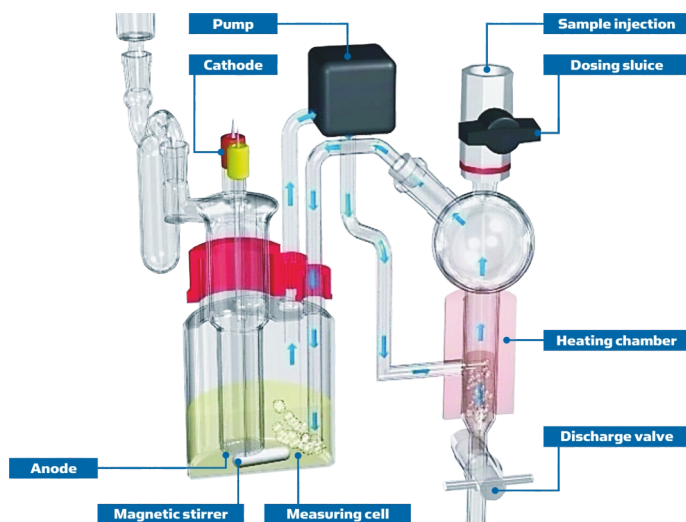
## Features and results

Water extraction of the samples at temperatures 35 °C up to 250 °C, e. g.:

- Constant temperature
- Individually set up temperature programs
- Freely selectable temperature ramp
- Type of result: mg/L, mg/kg, ppm, %
- Formula generator available
- Easily adjustable methods for fast routines
- Data export
- Customisable report content



Preparation of measurement with temperature ramp



Closed-loop carrier gas circulation

## Water determination in oil and fuel samples

Sample	Dosing volume [mL]	Water content [ppm]	Measurement time [min]	Heating temperature [°C]
Transformer oil	2 - 5	9.5 ± 0.4	3 - 4	120
Compressor oil	2 - 5	34.4 ± 0.7	3 - 4	120
Lubricating oil	2 - 5	23.9 ± 0.5	3 - 4	120
Silicone oil	1 - 2	308 ± 2	4 - 8	70
Used oil	0.5 - 1	641 ± 10	8 - 10	120
Hydraulic oil	0.5 - 1	1415 ± 9	6 - 8	100
Engine oil (used)	0.5 - 1	1826 ± 9	8 - 12	120
Linseed oil	1 - 2	856 ± 3	7 - 10	60

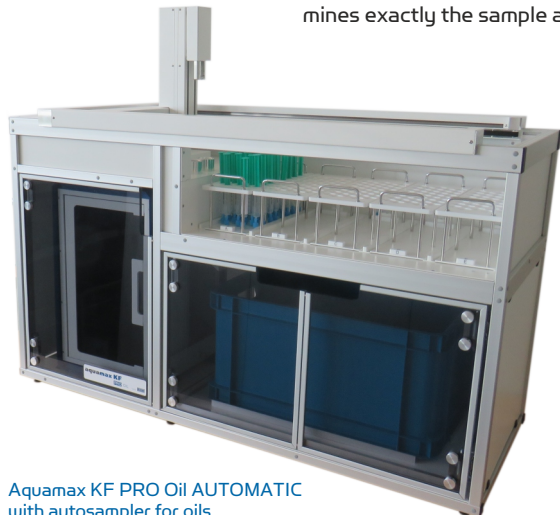
## Method Conformity

The coulometric Karl Fischer titrator Aquamax KF PRO Oil can be used for the following standard methods (examples):

ASTM D 1364	Volatile solvents	BS 6829:1.5	Surface active agents
ASTM D 1533	Insulating liquids	DIN 51777	Petroleum products
ASTM D 3401	Halogenated organic solvents	DIN EN ISO 12937	Petroleum products
ASTM D 4928	Crude oils	EI / IP 386	Crude petroleum
ASTM D 6304	Petroleum products	EI / IP 438	Petroleum products
ASTM E 1064	Organic liquids	ISO 10337	Crude petroleum
API Ch. 10.9	Crude oil		

## Accessories

The Aquamax KF PRO Oil is also available as a fully automatic version with **sampler for oils**. This makes it easy to handle large quantities of samples. The sampler has space for 200 sample syringes with 5 mL in five magazines. An integrated scale determines exactly the sample amount.



Aquamax KF PRO Oil AUTOMATIC  
with autosampler for oils

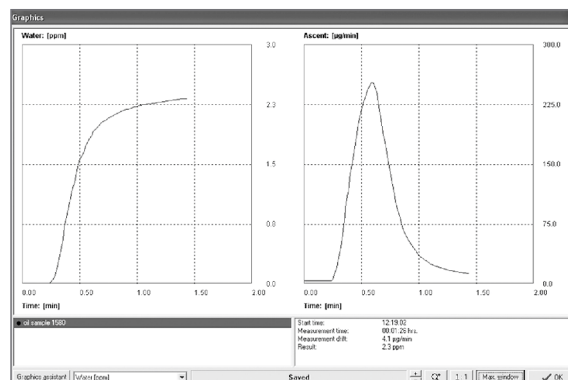
The **SWOP BOX** makes it easy and convenient to change reagents in titration cells. The module can be used on any Karl Fischer titrator, regardless of the system/design. The direct contact with chemicals and the ingress of humidity are minimised.



Universal reagent  
exchange module  
SWOP Box

## Technical specifications

Measurement method: Coulometric Karl Fischer titration  
 Sample administration: Manually with syringe  
 Sample amount: 0.01 ... 20 mL  
 Heating temperature: 35 ... 250 °C, isothermal or  
 with temperature program  
 Blank value: 0 µg  
 Measuring range: 0.0001 ... 100 %  
 Power supply: 230 V/50 Hz; 115 V/60 Hz  
 Dimensions: 33 x 39 x 48 cm (W x D x H)  
 Weight: 17 kg  
 Device control: PC software (PC not included  
 in the scope of delivery)



Dual Graph Display shows live result and titration profile

## Book your online demo in the ECH Studio

ECH Scientific have a state of the art laboratory fitted with online presentation capabilities, allowing us to bring product demonstrations live and in full HD, with multiple camera angles and software sharing capabilities enabling us to deliver a full demo experience remotely. Please contact [info@echscientific.com](mailto:info@echscientific.com) to book your session.

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