Water determination in all types of samples

Flexible, cost-efficient and easy handling without sample preparation

aqua vario 40.00

made by ECH

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Product description

The AQUA 40.00 Vario combines the Karl Fischer Titration with the headspace technique. This offers a wide range of interesting applications to determine moisture in solid and pasty samples, oils and viscous compounds.
The sample preparation takes place using the dynamic headspace technique. The sample - in a closed vial - is placed into the headspace oven and tempered.
A closed-loop gas circulation with dry carrier gas flows across the sample and transports the extracted water completely into the measuring cell, where the analysis is carried out by titration according to the Karl Fischer method.
It does not require time-consuming sample preparation:
- Weigh out the sample into the headspace vial and close it
- Place the vial in the device (manually or automatically)
- Prepare the measurement and start it

AQUA 40.00 Vario as manual version

Advantages

- Reduced reagent consumption
- No evaporation of methanol from the reagent
- Additional gas drying is not required due to closed-loop circulation of extraction gas
- Stand-by titration for automatic conditioning and easy blank tests
- Short measuring times, even with complicated samples
- Suitable for 2 R - 50 R vials
- Easy automation with autosampler

Features

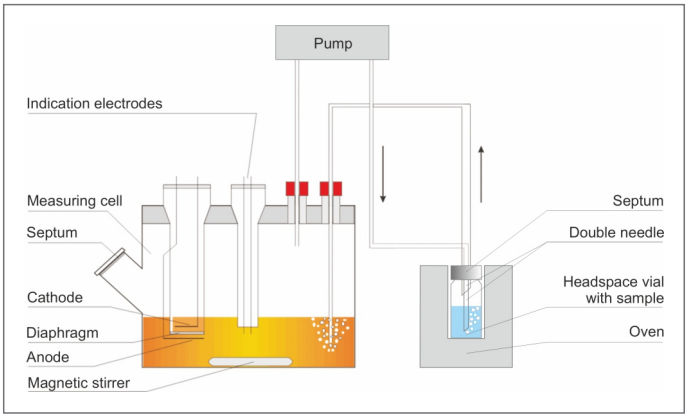
- Configurable temperature programmes
- Automatic identification of interchangeable oven and sample plate of the autosampler
- Priorized express samples can set individually by user
- Software complies with requirements of FDA to 21 CFR Part 11 (Software with user-specific access, routine methods for individual and definable user levels, profound documentation and archiving of all measured data)

Applications

- Pharmaceutical products
- Biological substances
- Plastics
- Hygroscopic compounds
- Freeze-dried products, e. g. lyophilized cultures
- Oils and lubricants, creams, pastes
- Viscous materials (bitumen, tar, sludges)
- Powder and pellets
- Food
- Petrochemicals

Closed-loop gas circulation

The system has the unique advantage of circulating the extraction gas in a closed loop. Any additional gas drying is not necessary.
The internal carrier gas for the extraction is continually titrated to dryness within the closed loop. The total dryness of the gas enhances the moisture release from the sample. Sensitive samples can be heated out very gently.
All these advantages result in reducing reagent consumption considerably.



Uniquely: the closed-loop circulation of extraction gas

AQUA 40.00 Vario PLUS - automatic version with sampler

Automated version

With the autosampler, the manual device is easily transformed into a fully automatic version.
The system can be quickly and conveniently adapted to different vial sizes - simply change the oven insert and/or sample plate for the autosampler.
Predefined methods contain all settings for the sample vessels and the device configuration.

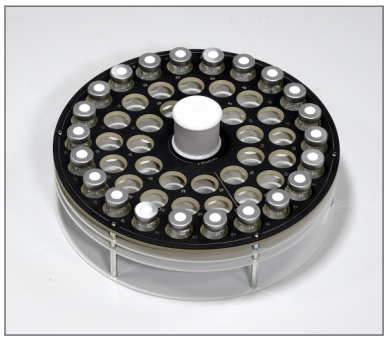
Method Conformity

The coulometric Karl Fischer titrator AQUA 40.00 Vario/ Vario PLUS can be used for the following standard methods:

ASTM	D 1364	Volatile solvents
ASTM	D 1533	Insulating liquids
ASTM	D 3401	Halogenated organic solvents
ASTM	D 4928	Crude oils
ASTM	D 6304	Petroleum products, lubricating oils, additives
ASTM	D 6869	Plastics
ASTM	E 1064	Organic liquids
API	Ch. 10.9	Crude oil
DIN	51777	Petroleum products
DIN EN	60814	Insulating liquids - Oil-impregnated paper and pressboard
DIN EN ISO	12937	Petroleum products
EI / IP	386	Crude petroleum
EI / IP	438	Petroleum products
ISO	10337	Crude petroleum

Pharmacopeia (Ph. Eur.)

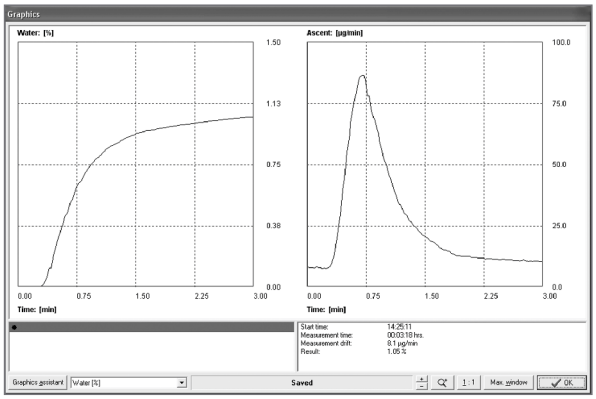
Flexible for different vial sizes



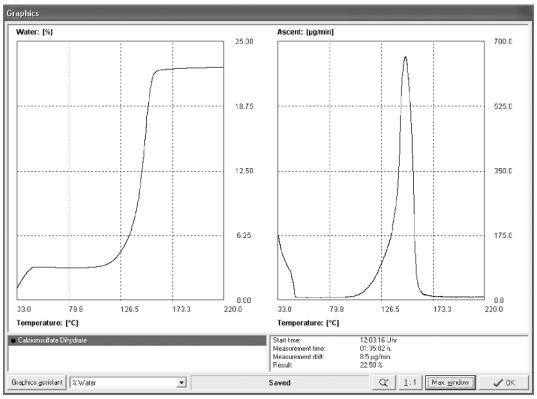
Sample plate and oven unit are easily exchangeable for different vial sizes (from 2 R to 50 R).

Distinction of binding forms

Temperature-controlled heating procedure, e. g. with temperature program, can be defined individually by the user. Such a temperature programme reveals in which way the water in question is bonded to the sample substance. You can distinguish between chemically bonded water of crystallization and adsorbed surface water.



Typical measurement with isothermal heating



Measurement with temperature programme to distinguish of adsorbed and bound water

Technical specifications

Sample dosing:	Headspace vials (size 2 R - 50 R)	
Measuring range:	1 µg bis 100 mg absolute	
Resolution:	0.1 µg	
Reproducibility:	± 3 µg for 10 ... 1000 µg, 3 % for > 1 mg	
Temperature range:	35 °C ... 300 °C (isothermal or with temperature programme)	
Power supply:	230 V, 50/60 Hz; 115 V, 50/60 Hz	
Power input:	250 W	
Dimensions/Weight:	Manual version:	300 x 450 x 240 mm (W x H x D)/7 kg
	Automatic version:	420 x 450 x 460 mm (W x H x D/17 kg
Device control:	PC software (PC not included in the scope of delivery)	

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