



**Molybdate HR VARIO PP**

**252**

**0.5 - 66 mg/l MoO<sub>4</sub>**

**MO2**

**Mercaptoacetic Acid**

## Instrument specific information

The test can be performed on the following devices. In addition, the required cuvette and the absorption range of the photometer are indicated.

Instrument Type	Cuvette	$\lambda$	Measuring Range
MD 600, MD 610, MD 640, MultiDirect	ø 24 mm	430 nm	0.5 - 66 mg/l MoO <sub>4</sub>
MD 100	ø 24 mm	430 nm	0.3 - 40 mg/l MoO <sub>4</sub>
SpectroDirect, XD 7000, XD 7500	ø 24 mm	420 nm	0.5 - 66 mg/l MoO <sub>4</sub>

## Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Molybdenum HR, Set F10	1 Set	535300

## Application List

- Boiler Water
- Cooling Water

## Preparation

1. Turbid water samples should be passed through a membrane filter prior to analysis.
2. Strongly buffered samples or samples with extreme pH values should, prior to analysis, be set to a pH of about 7 with 1 mol/l nitric acid or 1 mol/l sodium hydroxide solution.

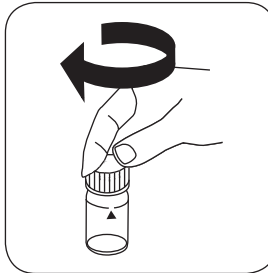
## Implementation of the provision Molybdate HR with Vario Powder Packs

Select the method on the device

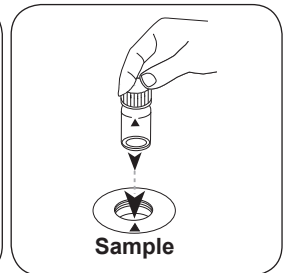
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500



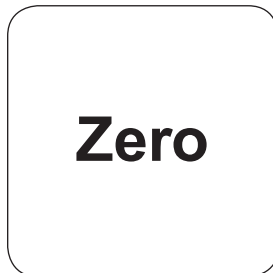
Fill 24 mm vial with **10 ml sample**.



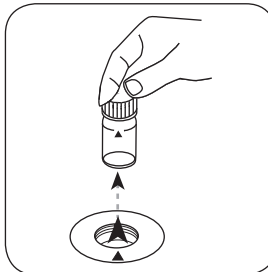
Close vial(s).



Place **sample vial** in the sample chamber. • Pay attention to the positioning.

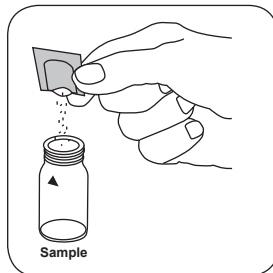


Press the **ZERO** button.

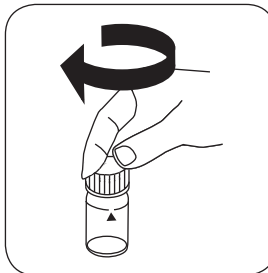


Remove the vial from the sample chamber.

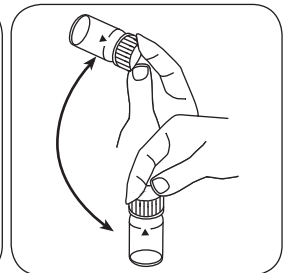
For devices that require **no ZERO measurement**, start here.



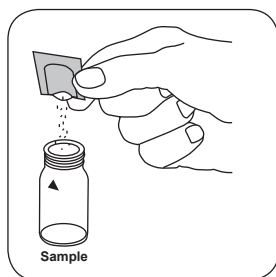
Add **Vario Molybdenum HR 1 F10 powder pack**.



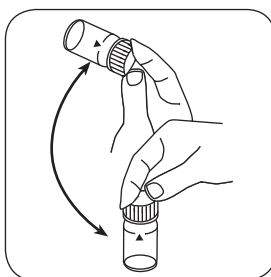
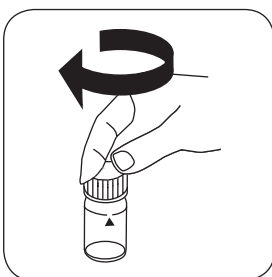
Close vial(s).



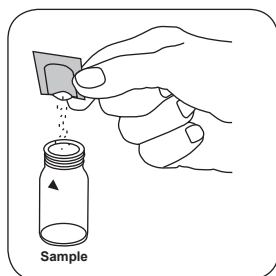
Swirl around to dissolve the powder.



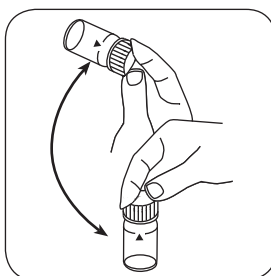
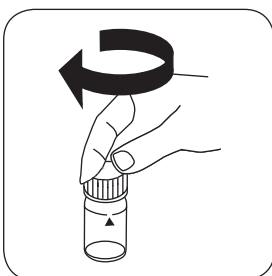
Add **Vario Molybdenum HR** Close vial(s).  
**2 F10 powder pack.**



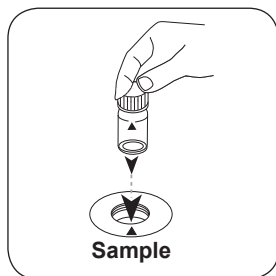
Invert several times to mix  
the contents.



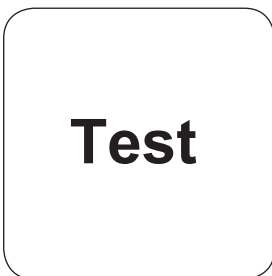
Add **Vario Molybdenum HR** Close vial(s).  
**3 F10 powder pack.**



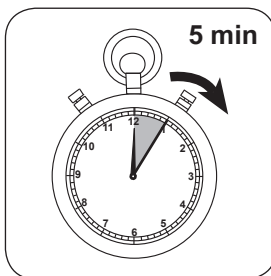
Swirl around to dissolve the  
powder.



Place **sample vial** in the  
sample chamber. • Pay  
attention to the positioning.



Press the **TEST** (XD:  
**START**) button.



Wait for **5 minute(s) reac-**  
**tion time.**

Once the reaction period is finished, the measurement takes place automatically.

The result in mg/l Molybdate/ Molybdenum appears on the display.

## Analyses

The following table identifies the output values can be converted into other citation forms.

Unit	Cite form	Scale Factor
mg/l	MoO <sub>4</sub>	1
mg/l	Mo	0.6
mg/l	Na <sub>2</sub> MoO <sub>4</sub>	1.29

## Chemical Method

Mercaptoacetic Acid

## Appendix

### Interferences

#### Persistent Interferences

- At concentrations of 10 mg/l Cu, more than the specified 5 minute response time leads to higher values. A rapid test performance is therefore particularly important.

Interference	from / [mg/l]
Al	50
Cr	1000
Fe	50
Ni	50
NO <sub>2</sub> <sup>-</sup>	in allen Mengen

### Method Validation

End of Measuring Range	66 mg/l
Sensitivity	0.4 mg/l
Confidence Range	0.30 %
Standard Deviation	0.15 µg
Variation Coefficient	0.60 %

### Bibliography

Analytical Chemistry, 25(9) 1363 (1953)

<sup>a)</sup> determination of free, combined and total | <sup>b)</sup> Reactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C) | <sup>c)</sup> MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75) | <sup>d)</sup> Spectroquant® is a Merck KGaA Trademark | <sup>e)</sup> alternative reagent, used instead of DPD No.1/No.3 in case of turbidity in the water sample caused by high concentration of calcium and/or high conductivity | <sup>f)</sup> additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine | <sup>g)</sup> Reagent recovers most insoluble iron oxides without digestion | <sup>h)</sup> additionally required for samples with hardness values above 300 mg/l CaCO<sub>3</sub> | <sup>i)</sup> high range by dilution | <sup>\*)</sup> including stirring rod, 10 cm