



Molybdate HR PP

M252

0.3 - 40 mg/L Mo

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 100, MD 600, MD 610, MD 640, MultiDirect	ø 24 mm	430 nm	0.3 - 40 mg/L Mo
MD50	ø 24 mm	445 nm	1.6 - 40 mg/L Mo
SpectroDirect, XD 7000, XD 7500	ø 24 mm	420 nm	0.3 - 40 mg/L Mo

## 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.





## Determination of Molybdate HR with Vario Powder Packs

Select the method on the device.

For this method, a ZERO measurement does not have to be carried out every time on 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.

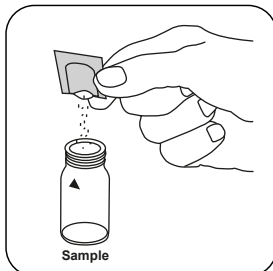


Press the **ZERO** button.

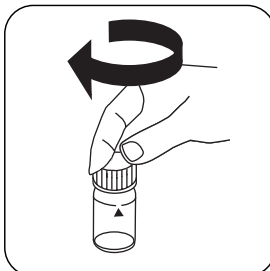


Remove the vial from the sample chamber.

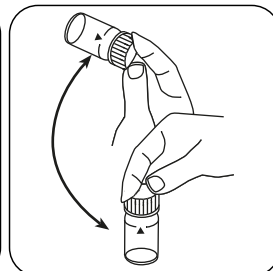
For devices that require **no ZERO measurement**, start here.



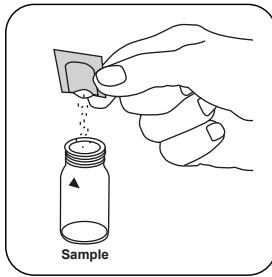
Add **Vario Molybdenum HR 1 F10 powder pack**.



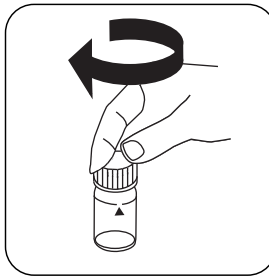
Close vial(s).



Swirl around to dissolve the powder.



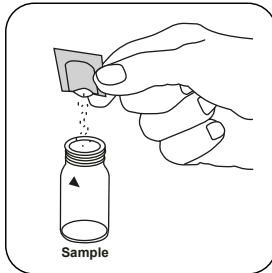
Add **Vario Molybdenum HR 2 F10 powder pack**.



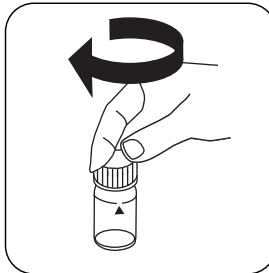
Close vial(s).



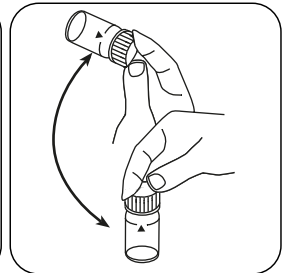
Invert several times to mix the contents.



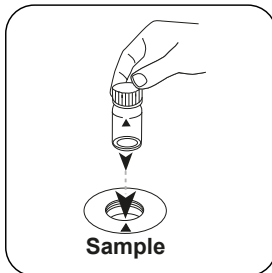
Add **Vario Molybdenum HR 3 F10 powder pack**.



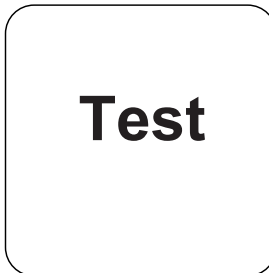
Close vial(s).



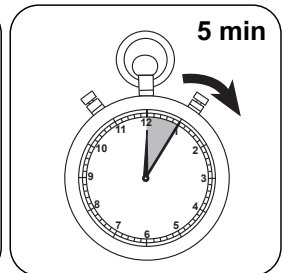
Swirl around to dissolve the powder.



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



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



Wait for **5 minute(s) reaction 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

### Calibration function for 3rd-party photometers

Conc. = a + b•Abs + c•Abs<sup>2</sup> + d•Abs<sup>3</sup> + e•Abs<sup>4</sup> + f•Abs<sup>5</sup>

	∅ 24 mm	□ 10 mm
a	-1.654•10 <sup>-2</sup>	-1.654•10 <sup>-2</sup>
b	2.49983•10 <sup>+1</sup>	5.37464•10 <sup>+1</sup>
c		
d		
e		
f		

## 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 all quantities



## Method Validation

<b>Limit of Detection</b>	0.16 mg/L
<b>Limit of Quantification</b>	0.47 mg/L
<b>End of Measuring Range</b>	40 mg/L
<b>Sensitivity</b>	25.04 mg/L / Abs
<b>Confidence Intervall</b>	0.712 mg/L
<b>Standard Deviation</b>	0.294 mg/L
<b>Variation Coefficient</b>	1.46 %

## Bibliography

Analytical Chemistry, 25(9) 1363 (1953)