Silicate LR PP M351

0.1 - 1.6 mg/L SiO_2 SiLr

Heteropolyblue

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	λ	Measuring Range
MD 100, MD 600, MD 610, MD 640, MultiDirect	ø 24 mm	660 nm	0.1 - 1.6 mg/L SiO_2
SpectroDirect, XD 7000, XD 7500	ø 24 mm	815 nm	0.05 - 1.6 mg/L SiO_2

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Silica LR, Set F10	1 Set	535690

Application List

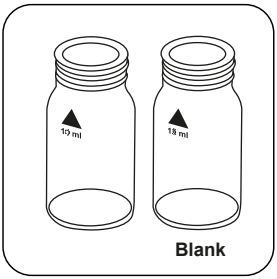
- Boiler Water

Notes

1. The given reaction time of 4 minutes refers to a sample temperature of 20 °C. At a sample temperature of 30 °C, a reaction time is 4 minutes and at 10 °C, a reaction time of 8 minutes.

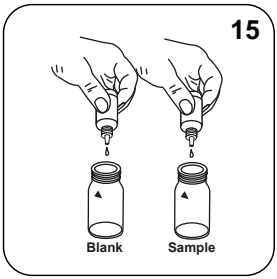
Determination of Silicon dioxide LR with Vario Powder Packs and liquid reagent

Select the method on the device.

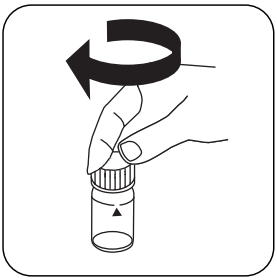


Prepare two clean 24 mm vials. Mark one as a blank.

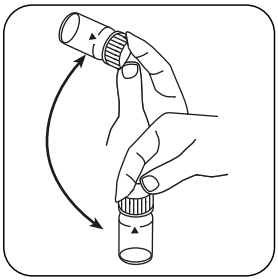
Place **10 mL sample** in each vial.



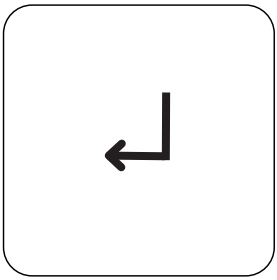
Add **15 drops Vario Molybdate 3 Reagenz- solution** to each vial.



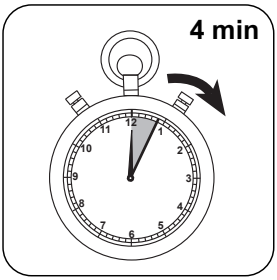
Close vial(s).



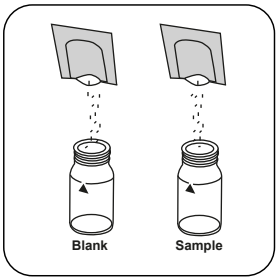
Invert several times to mix the contents.



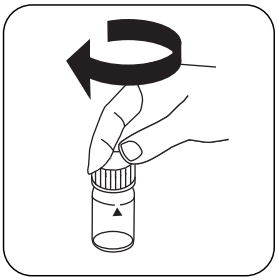
Press the **ENTER** button.



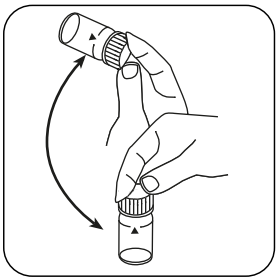
Wait for **4 minute(s) reaction time**.



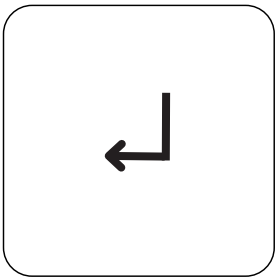
Add **a Vario Silica Citric Acid F10 powder pack** in each vial.



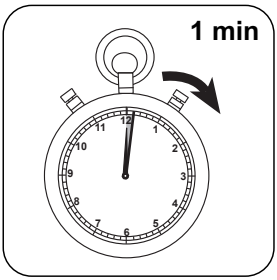
Close vial(s).



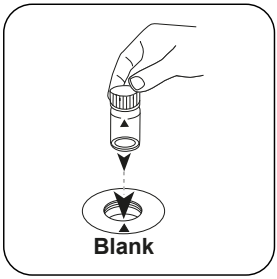
Swirl around to dissolve the powder.



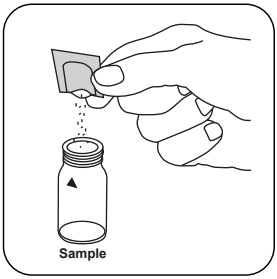
Press the **ENTER** button.



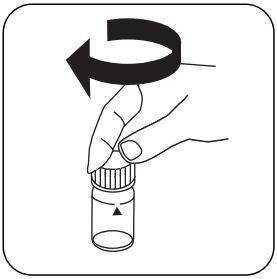
Wait for **1 minute(s) reaction time**.



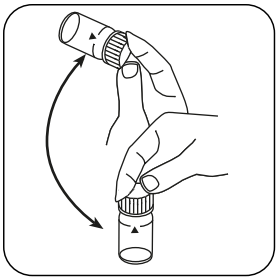
Place **blank** in the sample chamber. Pay attention to the positioning.



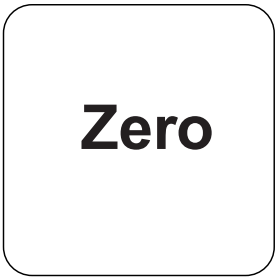
Add a **Vario Silica Amino Acid F10 powder pack** to the sample vial.



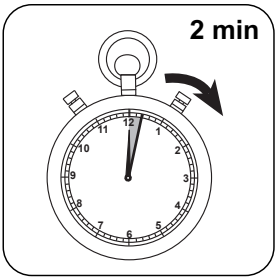
Close vial(s).



Swirl around to dissolve the powder.

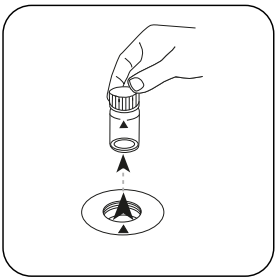


Press the **ZERO** button.

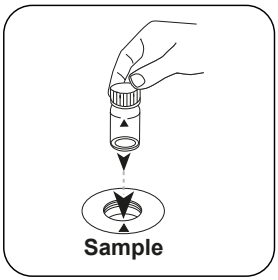


Wait for **2 minute(s) reaction time**.

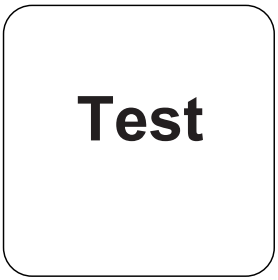
Once the reaction period is finished, the measurement takes place automatically.



Remove the vial from the sample chamber.



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



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

The result in mg/L Silica 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	SiO_2	1
mg/l	Si	0.47

Chemical Method

Heteropolyblue

Appendix

Calibration function for 3rd-party photometers

Conc. = a + b•Abs + c•Abs^2 + d•Abs^3 + e•Abs^4 + f•Abs^5

	ø 24 mm	□ 10 mm
a	$-3.52432 \cdot 10^{-2}$	$-3.52432 \cdot 10^{-2}$
b	$1.45158 \cdot 10^{+0}$	$3.1209 \cdot 10^{+0}$
c	$-7.19729 \cdot 10^{-2}$	$-3.32695 \cdot 10^{-1}$
d		
e		
f		

Interferences

Removeable Interferences

1. Close the vials with the cap immediately after adding the Vario Molybdate 3 reagent solution, otherwise low readings may result.
2. Occasionally water samples contain forms of silica which reacts very slowly with Molybdate. The nature of these forms is not known. A pre-treatment with Sodium hydrogencarbonate and then with Sulphuric Acid will make these forms reactive to Molybdate (pre-treatment is given in “Standard Methods for the Examination of Water and Wastewater” under “ Silica Digestion with Sodium Bicarbonate”).

Interference	from / [mg/L]
Fe	large quantities
PO_4^{3-}	50
S^{2-}	in all quantities

Method Validation

Limit of Detection	0.01 mg/L
Limit of Quantification	0.03 mg/L
End of Measuring Range	1.6 mg/L
Sensitivity	1.35 mg/L / Abs
Confidence Intervall	0.01 mg/L
Standard Deviation	0.004 mg/L
Variation Coefficient	0.46 %

Derived from

Standard Method 4500-SiO2 D