Copper VLR PP M152

2 - 210 µg/L Cu

Porphyrine Indicator

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 600, MultiDirect	ø 24 mm	430 nm	2 - 210 µg/L Cu
SpectroDirect, XD 7000, XD 7500	ø 24 mm	425 nm	2 - 210 µg/L Cu

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
VARIO Copper, Set F10	1 Set	535140

Application List

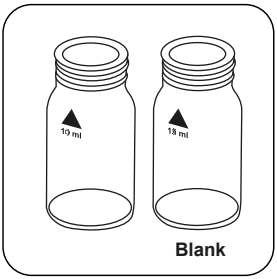
- Waste Water Treatment

Notes

1. For most accurate results, a reagent blank measurement should be performed.
2. The pH of the sample has to be adapted by addition of sodium hydroxide solution or salpetric acid to a range 2-6 before starting the measurement.

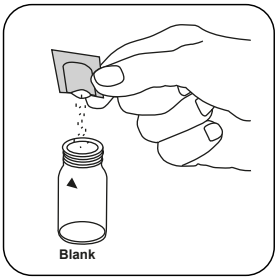
Determination of Copper VLR with powder packs

Select the method on the device.

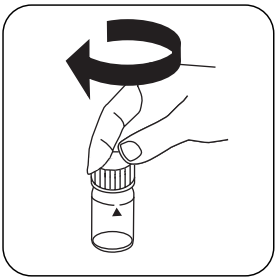


Prepare two clean 24 mm vials. Mark one as a blank.

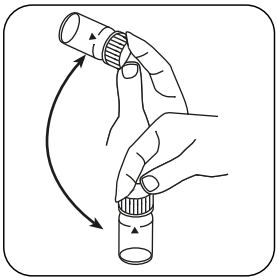
Place **10 mL sample** in each vial.



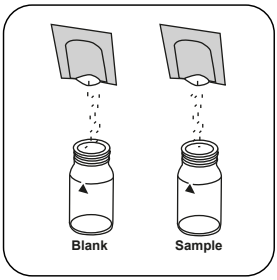
Add a **CU3 Masking F10 powder pack** to the blank.



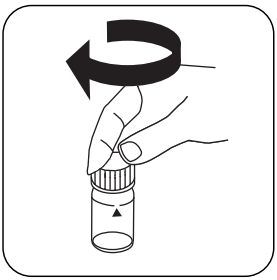
Close vial(s).



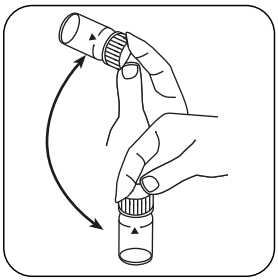
Swirl around to dissolve the powder.



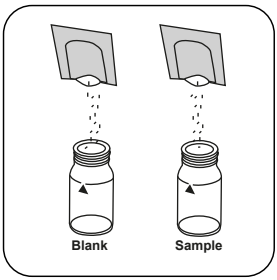
Add **a CU1 Porphyrin F10 powder pack** in each vial.



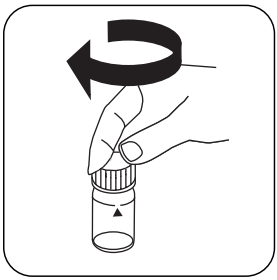
Close vial(s).



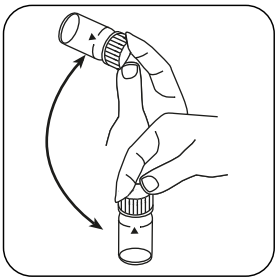
Swirl around to dissolve the powder.



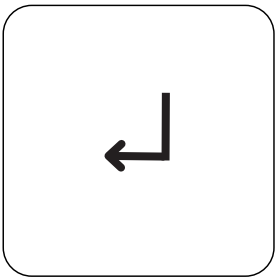
Add **a CU2 Porphyrin F10 powder pack** in each vial.



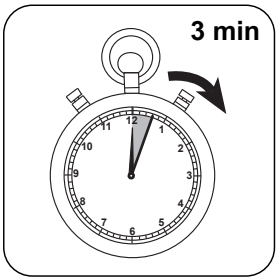
Close vial(s).



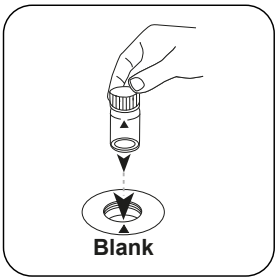
Swirl around to dissolve the powder.



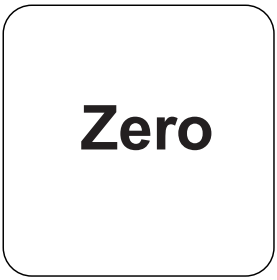
Press the **ENTER** button.



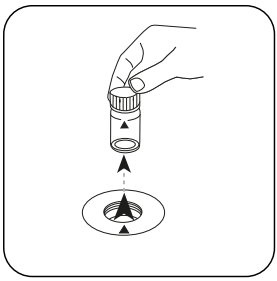
Wait for **3 minute(s) reaction time**.



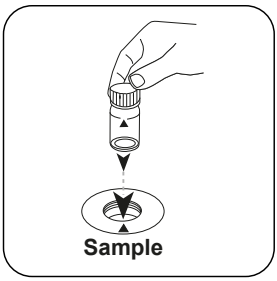
Place **blank** in the sample chamber. Pay attention to the positioning.



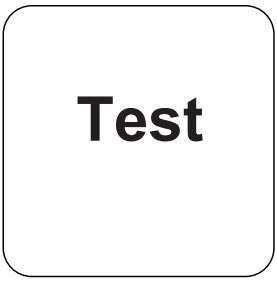
Press the **ZERO** button.



Remove the vial from the sample chamber.



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



Press the **TEST** button.

The result in **µg/L** Copper appears on the display.

Chemical Method

Porphyrine Indicator

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	$1.6957 \cdot 10^{+0}$	$1.6957 \cdot 10^{+0}$
b	$1.5650 \cdot 10^{+2}$	$3.3647 \cdot 10^{+2}$
c		
d		
e		
f		

Interferences

Persistant Interferences

1. Complexing substances can interfere in any concentration.

Interference	**from / [mg/L]**
Al^{3+}	60
Cd^{2+}	10
Ca^{2+}	15000
Cl^{-}	90000
Cr^{6+}	110
Co^{2+}	100
F^{-}	30000
Pb^{2+}	3
Mg^{2+}	10000
Mn	140
Mo	11
Ni^{2+}	60
K^{+}	60000
Na^{+}	90000
Zn^{2+}	9
Fe	6
Hg	3

Method Validation

Limit of Detection	2.6 µg/L
Limit of Quantification	7.9 µg/L
End of Measuring Range	210 µg/L
Sensitivity	156 µg/L/Abs
Confidence Intervall	5.5 µg/L
Standard Deviation	2.3 µg/L
Variation Coefficient	2.2 %