



Copper L

M151

0.05 - 4 mg/L Cu^{a)}

Bicinchoninate

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, MD 610, MD 640, XD 7000, XD 7500	ø 24 mm	560 nm	0.05 - 4 mg/L Cu ^{a)}

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Copper Reagent Set (free + total)	1 pc.	56R023355
Copper No. 2	Tablet / 100	513560BT
Copper No. 2	Tablet / 250	513561BT
ValidCheck Copper 2 mg/l	1 pc.	48141525

The following accessories are required.

Accessories	Packaging Unit	Part Number
Stirring rod and spoon	1 pc.	56A006601

Application List

- Cooling Water
- Boiler Water
- Waste Water Treatment
- Pool Water Control
- Drinking Water Treatment
- Galvanization



Preparation

1. Strong alkaline or acidic water samples must be adjusted to pH 4 to 6 before analysis.
2. The measuring spoon supplied with the reagents must be used for the correct dosage.



Determination of Copper, free with liquid reagent

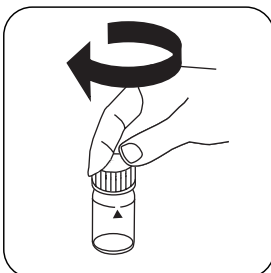
Select the method on the device.

In addition, choose the test: free

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**.



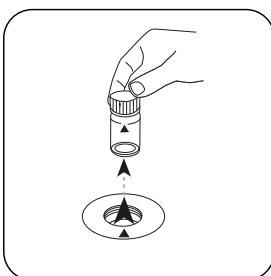
Close vial(s).



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

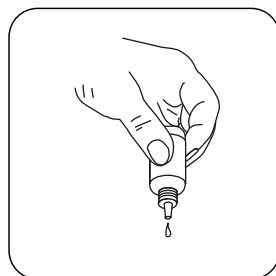


Press the **ZERO** button.

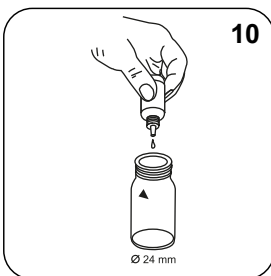


Remove the vial from the sample chamber.

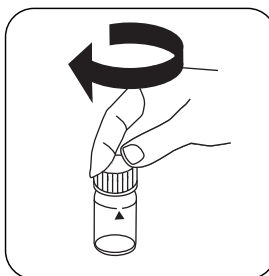
For devices that require **no ZERO measurement**, start here.



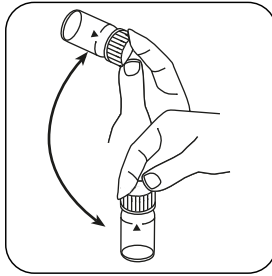
Hold cuvettes vertically and add equal drops by pressing slowly.



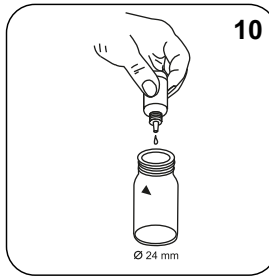
Add **10 drops KS240 (Coppercol Reagent 1)**.



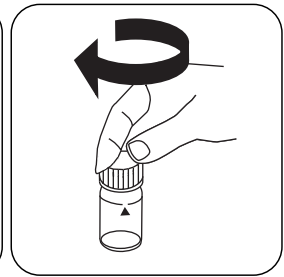
Close vial(s).



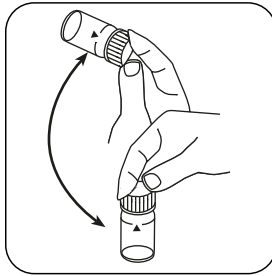
Invert several times to mix the contents.



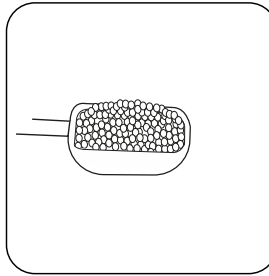
Add **10 drops**
KS241 (Coppercol
Reagent 2).



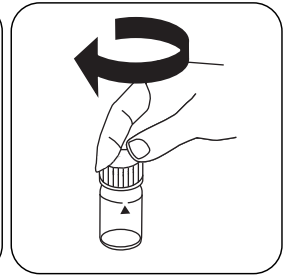
Close vial(s).



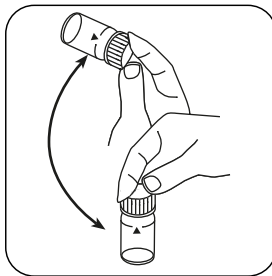
Invert several times to mix the contents.



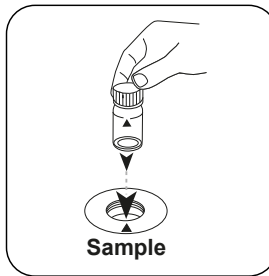
Add a **measuring scoop**
KP242 (Coppercol
Reagent 3).



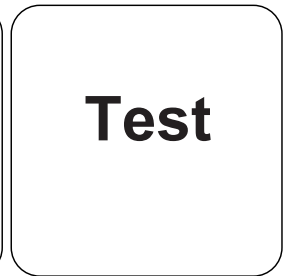
Close vial(s).



Swirl around to dissolve the powder.



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



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

The result in mg/L free Copper appears on the display.

Test



Determination of Copper, total with liquid reagent

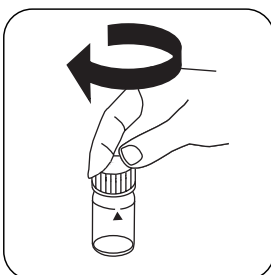
Select the method on the device.

In addition, choose the test: total

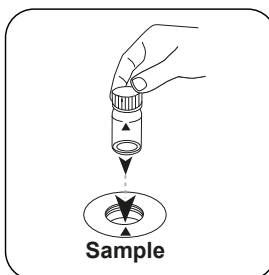
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



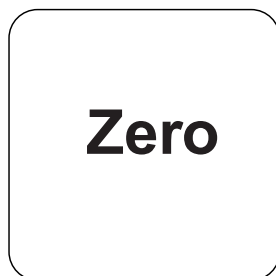
Fill 24 mm vial with **10 mL sample**.



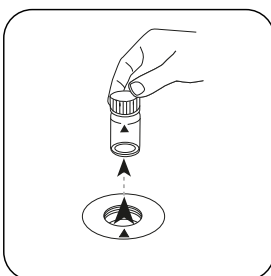
Close vial(s).



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

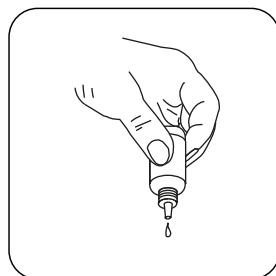


Press the **ZERO** button.

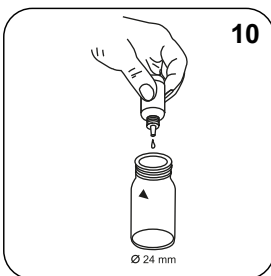


Remove the vial from the sample chamber.

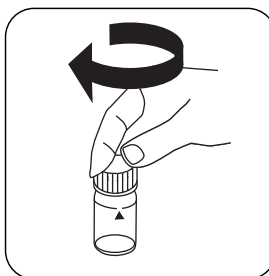
For devices that require **no ZERO measurement**, start here.



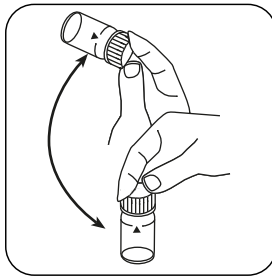
Hold cuvettes vertically and add equal drops by pressing slowly.



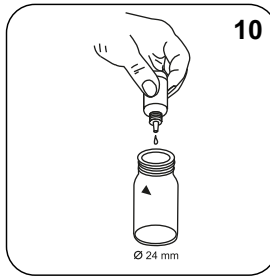
Add **10 drops KS240 (Coppercol Reagent 1)**.



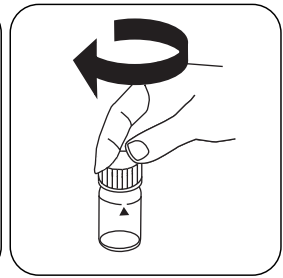
Close vial(s).



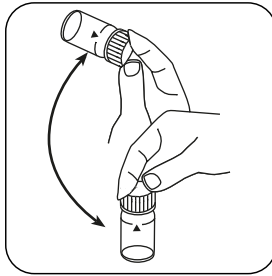
Invert several times to mix the contents.



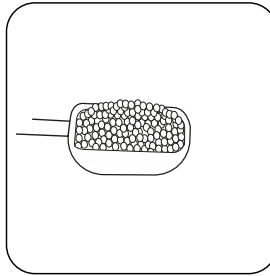
Add **10 drops KS241 (Coppercol Reagent 2)**.



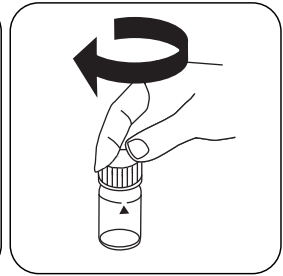
Close vial(s).



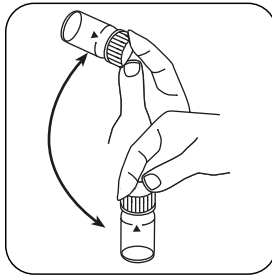
Invert several times to mix the contents.



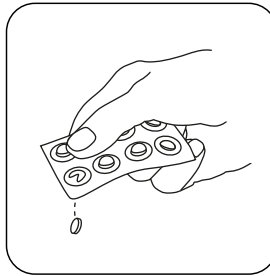
Add a **measuring scoop KP242 (Coppercol Reagent 3)**.



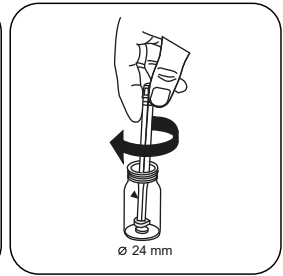
Close vial(s).



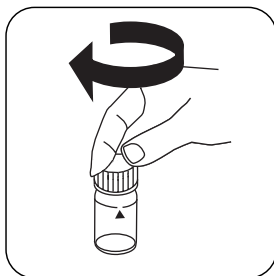
Swirl around to dissolve the powder.



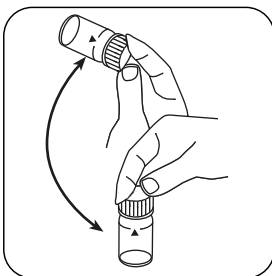
Add **COPPER No.2 tablet**.



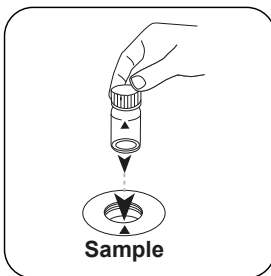
Crush tablet(s) by rotating slightly.



Close vial(s).



Dissolve tablet(s) by inverting.



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

Test

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

The result in mg/L totale Copper appears on the display.

Determination of Copper, differentiated with liquid reagent

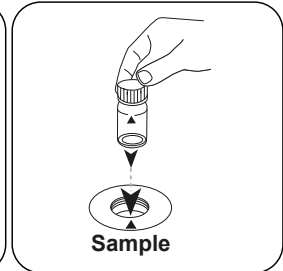
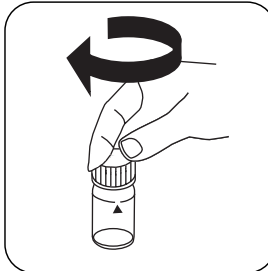
Select the method on the device.

In addition, choose the test: differentiated

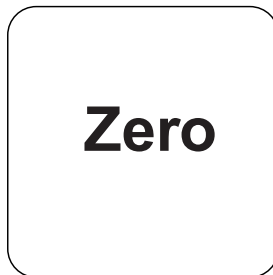
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



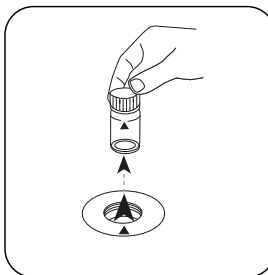
Fill 24 mm vial with **10 mL** **sample**. Close vial(s).



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

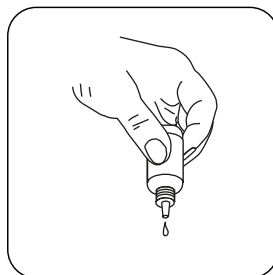


Press the **ZERO** button.

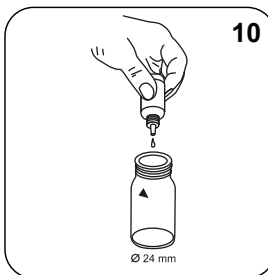


Remove the vial from the sample chamber.

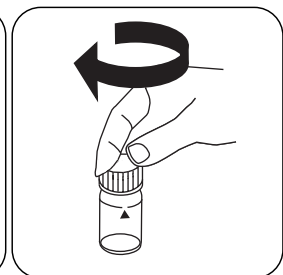
For devices that require **no ZERO measurement**, start here.



Hold cuvettes vertically and add equal drops by pressing slowly.



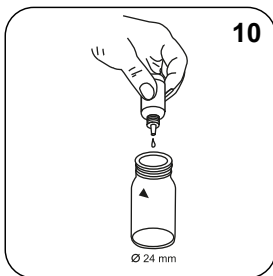
Add **10 drops** **KS240 (Coppercol Reagent 1)**.



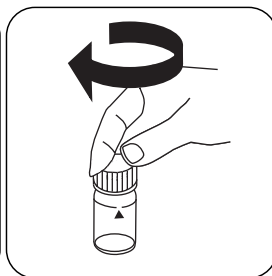
Close vial(s).



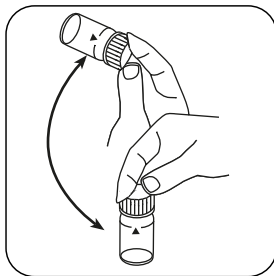
Invert several times to mix the contents.



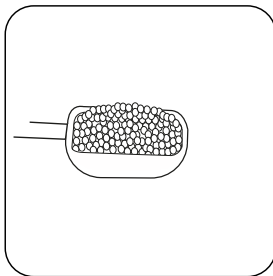
Add **10 drops** **KS241 (Coppercol Reagent 2)**.



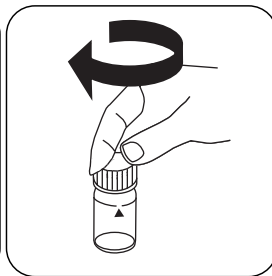
Close vial(s).



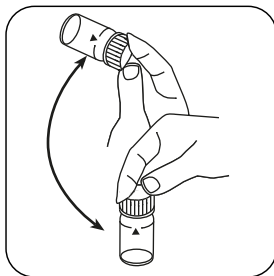
Invert several times to mix the contents.



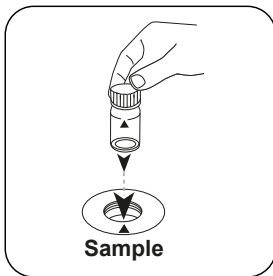
Add a **measuring scoop** **KP242 (Coppercol Reagent 3)**.



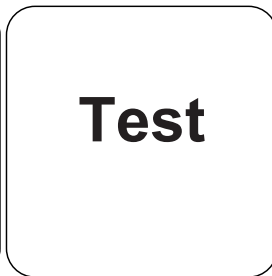
Close vial(s).



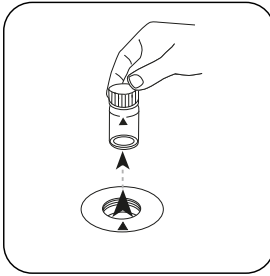
Swirl around to dissolve the powder.



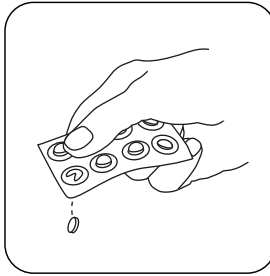
Place **sample vial** in the sample chamber. Pay attention to the positioning.



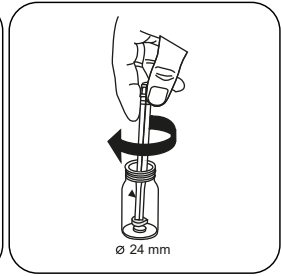
Press the **TEST** (XD: **START**) button.



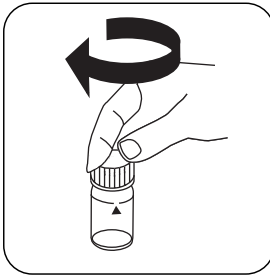
Remove the vial from the sample chamber.



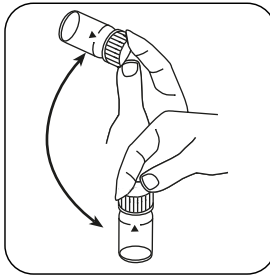
Add **COPPER No. 2 tablet**



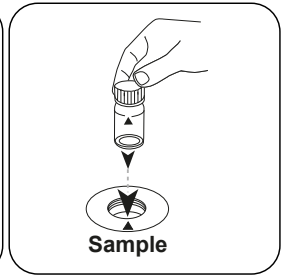
Crush tablet(s) by rotating slightly.



Close vial(s).



Dissolve tablet(s) by inverting.



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

Test

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

The result in mg/L free Copper; combined Copper; total Copper appears on the display.



Chemical Method

Bicinchoninate

Appendix

Calibration function for 3rd-party photometers

Conc. = $a + b \cdot \text{Abs} + c \cdot \text{Abs}^2 + d \cdot \text{Abs}^3 + e \cdot \text{Abs}^4 + f \cdot \text{Abs}^5$

	∅ 24 mm	□ 10 mm
a	$-2.55142 \cdot 10^{-3}$	$-2.55142 \cdot 10^{-3}$
b	$4.00888 \cdot 10^{+0}$	$8.61909 \cdot 10^{+0}$
c		
d		
e		
f		

Interferences

Persistent Interferences

1. Cyanide CN^- and Silver Ag^+ interfere with the test result.

Bibliography

S. Nakano, Y. Zasshi, 82 486 - 491 (1962) [Chemical Abstracts, 58 3390e (1963)]

Derived from

APHA Method 3500Cu

^{a)} determination of free, combined and total