



Chromium PP

125

0.02 - 2 mg/l Cr^{b)}

Diphenylcarbazide

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, MultiDirect	ø 16 mm	530 nm	0.02 - 2 mg/l Cr ^{b)}
SpectroDirect, XD 7000, XD 7500	ø 16 mm	542 nm	0.02 - 2 mg/l Cr ^{b)}

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Persulfat Reagent für CR	Powder / 100 pc.	537300
Chromium Hexavalent	Powder / 100 pc.	537310

Application List

- Waste Water Treatment
- Raw Water Treatment
- Galvanization
- Drinking Water Treatment

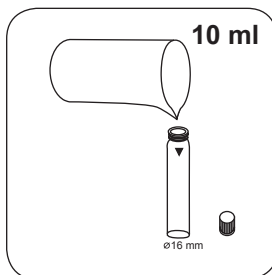
Preperation

1. The pH value of the sample should be between 3 and 9.

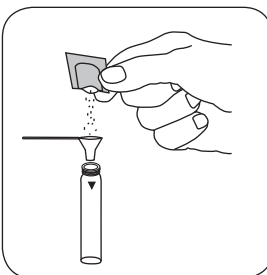
Notes

1. Implementation of the first part determines concentration of total chromium. In the second part, the concentration of Chromium (VI) is measured. The concentration of Chromium (III) is the result of the difference.

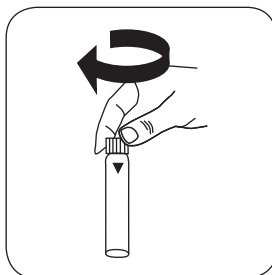
Digestion Chromium with powder packs



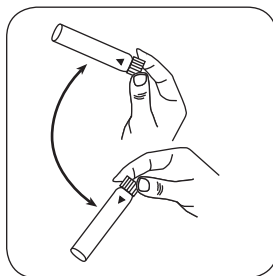
Fill 16 mm vial with **10 ml sample**.



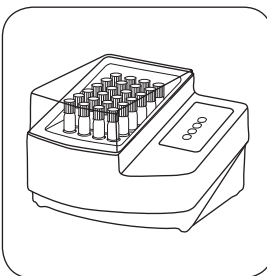
Add **PERSULFT.RGT FOR CR powder pack**.



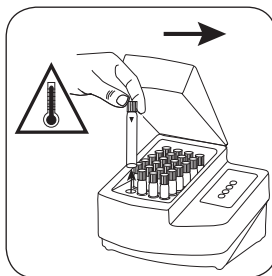
Close vial(s).



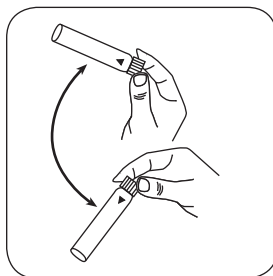
Invert several times to mix the contents.



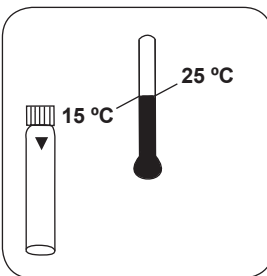
Seal the vials in the pre-heated thermoreactor for **120 minutes at 100 °C**.



Remove the vial from the thermoreactor. **Note: vial will be hot!**



Invert several times to mix the contents.



Allow the vial(s) to cool to room temperature.

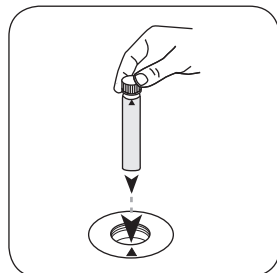
Implementation of the provision Chromium differentiated, with powder packs

Select the method on the device

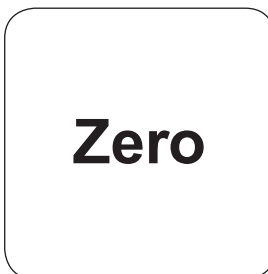
In addition, choose the test: differentiated

For testing of **Chromium, differentiated**, carry out the described **digestion**.

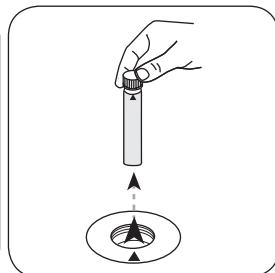
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500



Place pre-treated vial in the sample chamber. • Pay attention to the positioning.

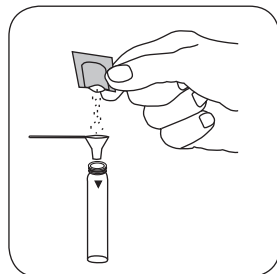


Press the **ZERO** button.

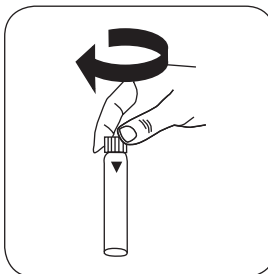


Remove **vial** from the sample chamber.

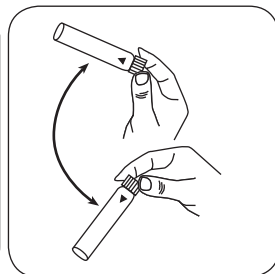
For devices that require **no ZERO measurement**, start here.



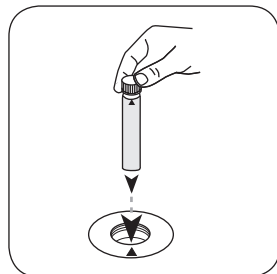
Add **CHROMIUM HEXAVALENT** powder pack.



Close vial(s).



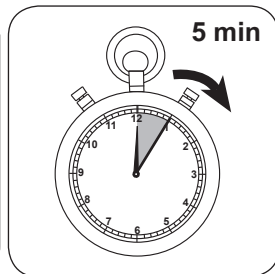
Invert several times to mix the contents.



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

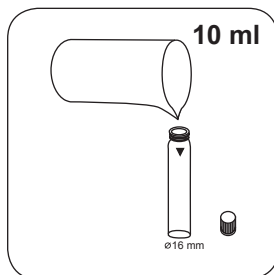


Press the **TEST** (XD: **START**) button.

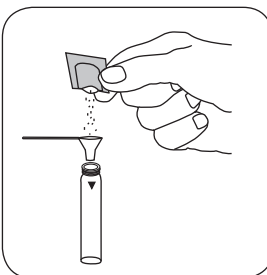


Wait for **5 minute(s)** reaction time.

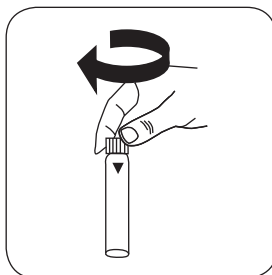
Once the reaction period is finished, the measurement takes place automatically.



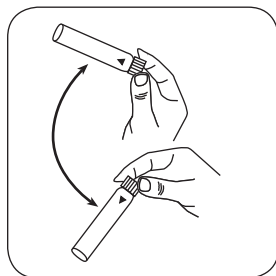
Fill a **second vial** with **10 ml** sample .



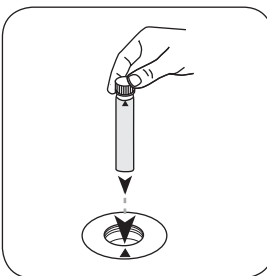
Add **CHROMIUM HEXAVALENT** powder pack.



Close vial(s).



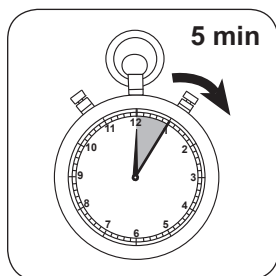
Invert several times to mix the contents.



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.

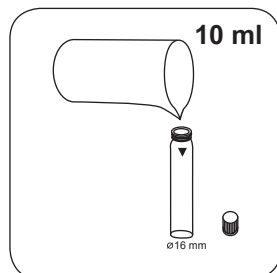
The result in mg/l Cr(VI); Cr(III); Cr Total Chromium appears on the display.

Implementation of the provision Chromium(VI), with powder packs

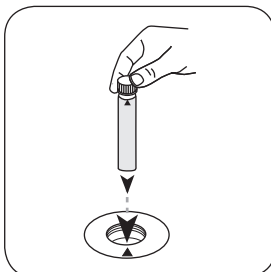
Select the method on the device

In addition, choose the test: Cr(VI)

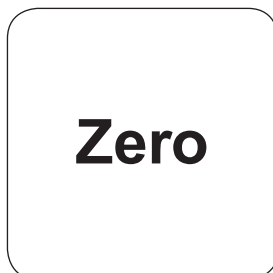
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500



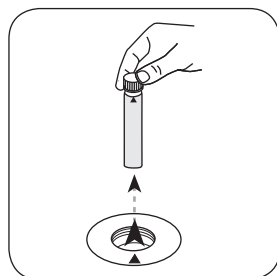
Fill 16 mm vial with **10 ml sample**.



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

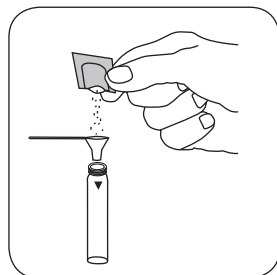


Press the **ZERO** button.

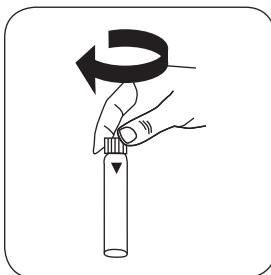


Remove **vial** from the sample chamber.

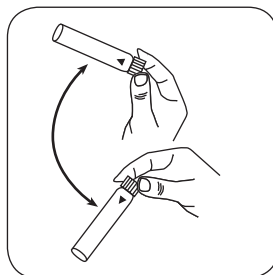
For devices that require **no ZERO measurement**, start here.



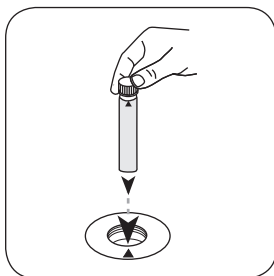
Add **CHROMIUM HEXAVALENT** powder pack.



Close vial(s).



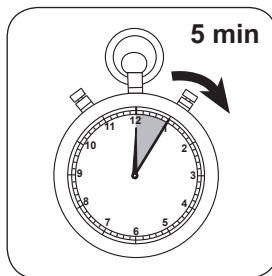
Invert several times to mix the contents.



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 Cr(VI) appears on the display.

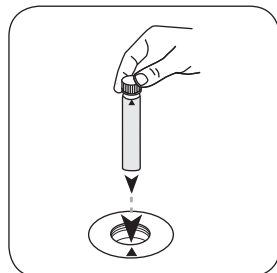
Implementation of the provision Chromium total (Cr(III) + Cr(VI)), with powder packs

Select the method on the device

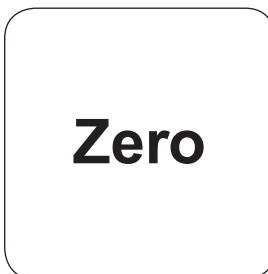
In addition, choose the test: Cr(III) + VI)

For testing of **Chromium, total (Cr(III)+ Cr(VI))**, carry out the described **digestion**.

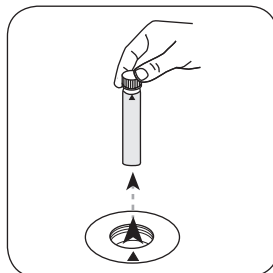
For this method, no ZERO measurements are to be carried out with the following devices: XD 7000, XD 7500



Place pre-treated vial in the sample chamber. • Pay attention to the positioning.

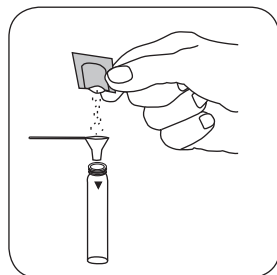


Press the **ZERO** button.

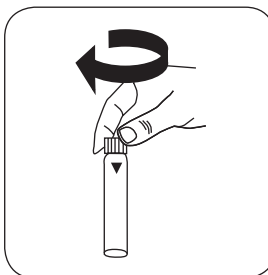


Remove **vial** from the sample chamber.

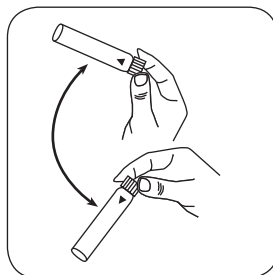
For devices that require **no ZERO measurement**, **start here**.



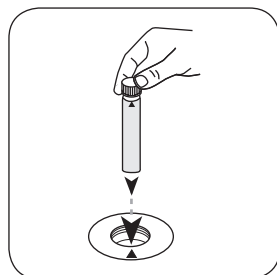
Add **CHROMIUM HEXAVALENT** powder pack.



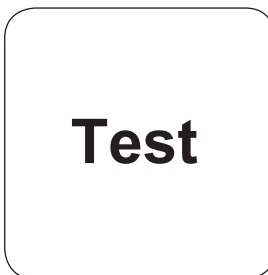
Close vial(s).



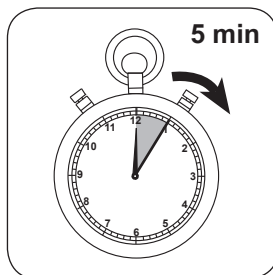
Invert several times to mix the contents.



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 total Chromium appears on the display.

Chemical Method

Diphenylcarbazide

Appendix

Interferences

Persistent Interferences

1. For information about interferences through metals and reductive or oxidizing agents, especially in strongly polluted water, see DIN 38 405 – D 24 and Standard Methods of Water and Wastewater, 20th Edition; 1998.

According to

DIN 3805 - D24

Derived from

DIN 18412

US EPA 218.6

^{a)} determination of free, combined and total | ^{b)} Reactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C) | ^{c)} MultiDirect: Adapter is necessary for Vacu-vials® (Order code 19 20 75) | ^{d)} Spectroquant® is a Merck KGaA Trademark | ^{e)} 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 | ^{f)} additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine | ^{g)} Reagent recovers most insoluble iron oxides without digestion | ^{h)} additionally required for samples with hardness values above 300 mg/l CaCO₃ | ⁱ⁾ high range by dilution | ^{j)} including stirring rod, 10 cm

