Chromium 50 PP M124

0.005 - 0.5 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
SpectroDirect, XD 7000, XD 7500	□ 50 mm	542 nm	0.005 - 0.5 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

The following accessories are required.

Accessories	Packaging Unit	Part Number
Thermoreactor RD 125	1 pc.	2418940

Application List

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

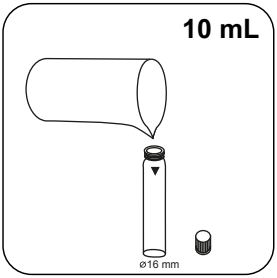
Preparation

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

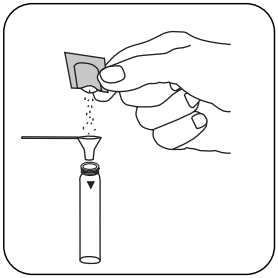
Notes

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.

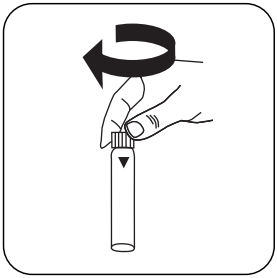
Digestion Chromium with powder packs



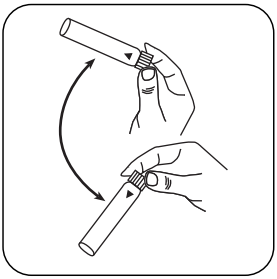
Fill 16 mm vial with **10 mL sample**.



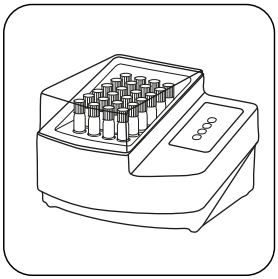
Add **PERSULFT.RGT FOR CR powder pack**.



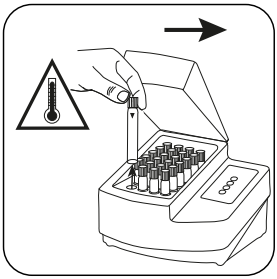
Close vial(s).



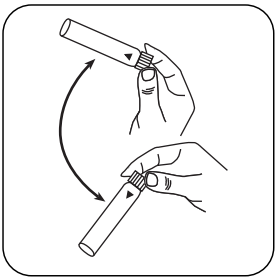
Invert several times to mix the contents.



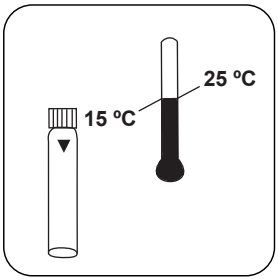
Seal the vials in the pre-heated thermoreactor for **120 minutes at 100 °C** .



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



Invert several times to mix the contents.



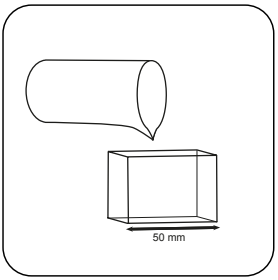
Allow the vial(s) to cool to room temperature.

Determination of Chromium(VI) with powder packs

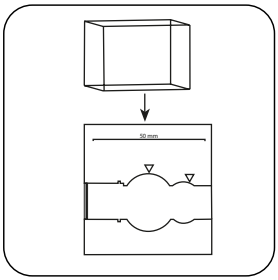
Select the method on the device.

In addition, choose the test: Cr(VI)

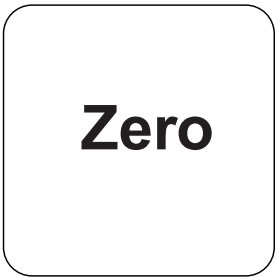
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



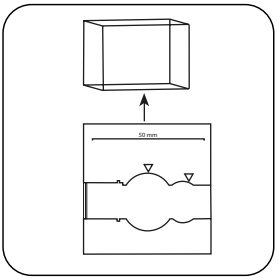
Fill 50 mm vial with **sample**.



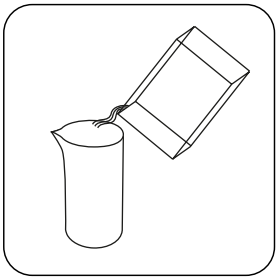
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



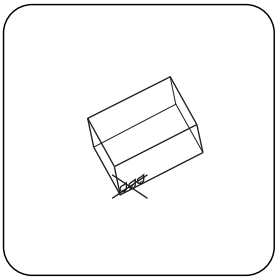
Press the **ZERO** button.



Remove **vial** from the sample chamber.

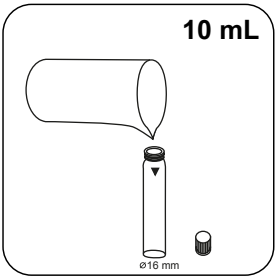


Empty vial.

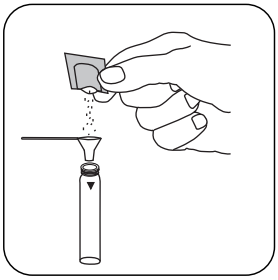


Dry the vial thoroughly.

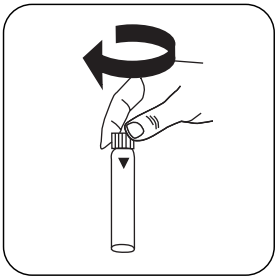
For devices that require **no ZERO measurement** , **start here**.



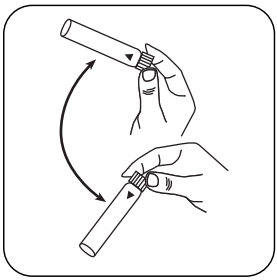
Fill 16 mm vial with **10 mL sample**.



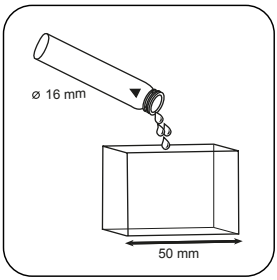
Add **CHROMIUM HEXAVALENT powder pack**.



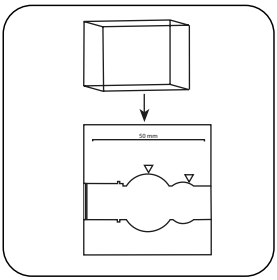
Close vial(s).



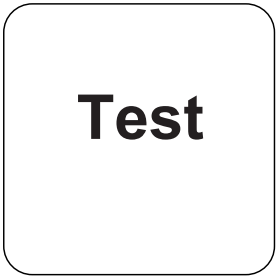
Invert several times to mix the contents.



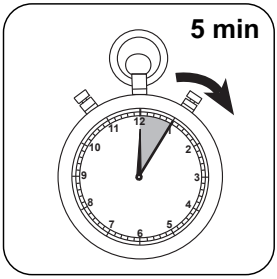
Fill 50 mm vial with prepared sample.



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.

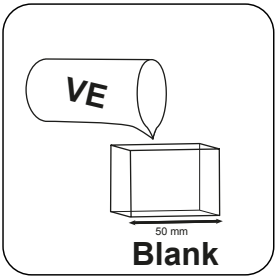
Determination of Chromium, total (Cr(III) + Cr(VI)) with powder packs

Select the method on the device.

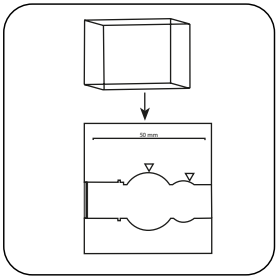
In addition, choose the test: Cr(III + VI)

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

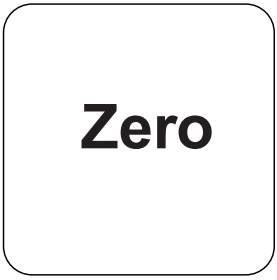
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



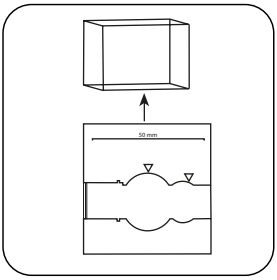
Fill **50 mm vial** with **deionised water** .



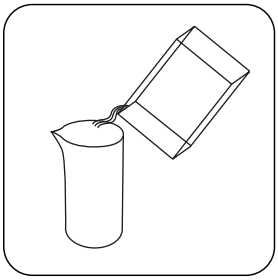
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



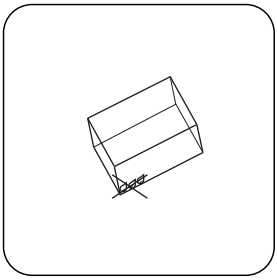
Press the **ZERO** button.



Remove **vial** from the sample chamber.

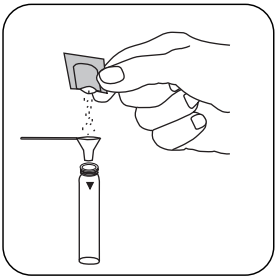


Empty vial.

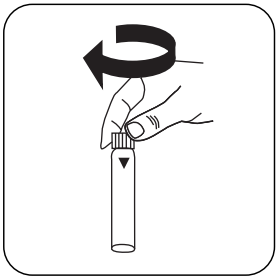


Dry the vial thoroughly.

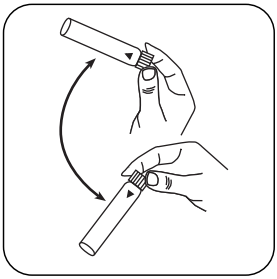
For devices that require **no ZERO measurement** , **start here**.



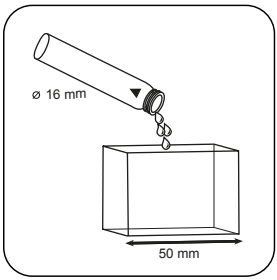
Place **Chromium HEXA-VALENT powder packs** in the digestion vial.



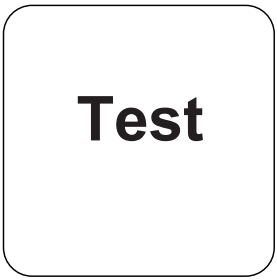
Close vial(s).



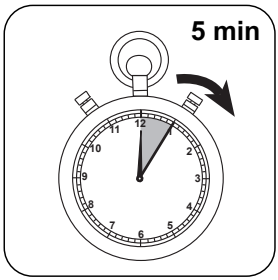
Invert several times to mix the contents.



Fill 50 mm vial with prepared sample.



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.

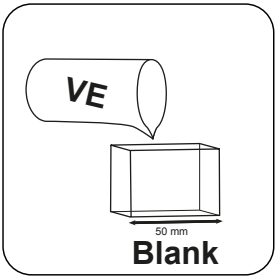
Determination of Chromium, differentiated, with powder packs

Select the method on the device.

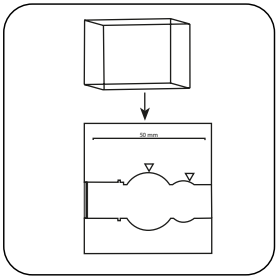
In addition, choose the test: differentiated

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

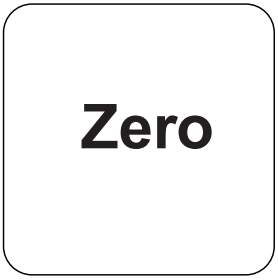
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



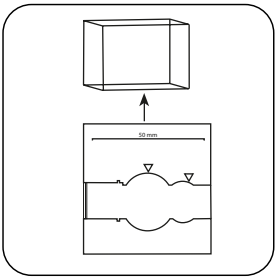
Fill **50 mm vial** with **deionised water** .



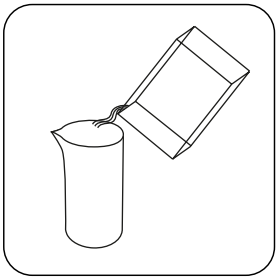
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



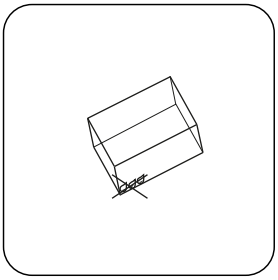
Press the **ZERO** button.



Remove **vial** from the sample chamber.

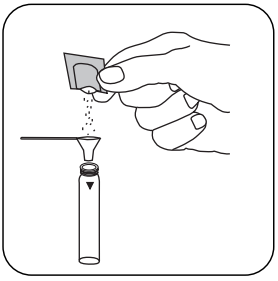


Empty vial.

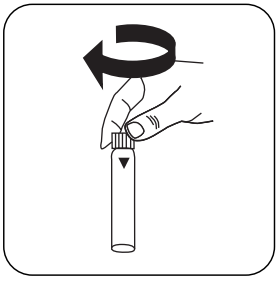


Dry the vial thoroughly.

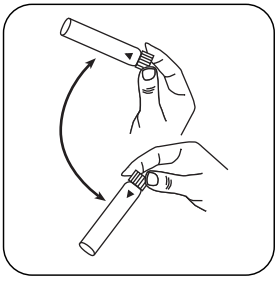
For devices that require **no ZERO measurement** , **start here**.



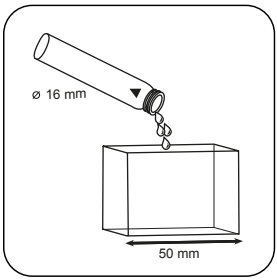
Place **Chromium HEXA-VALENT powder packs** in the digestion vial.



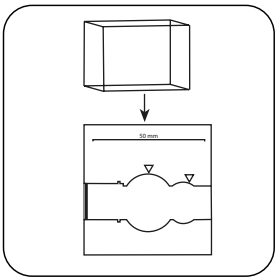
Close vial(s).



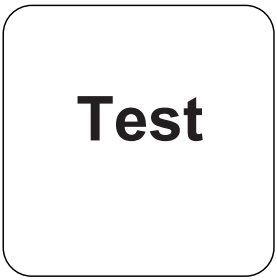
Invert several times to mix the contents.



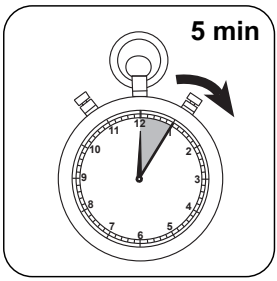
Fill 50 mm vial with prepared sample.



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

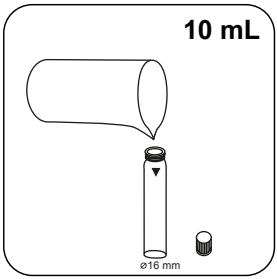


Press the **TEST** (XD: **START**)button.

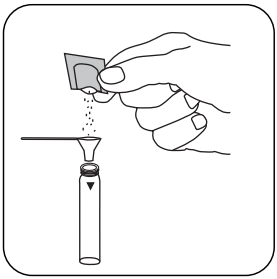


Wait for **5 minute(s) reaction time**.

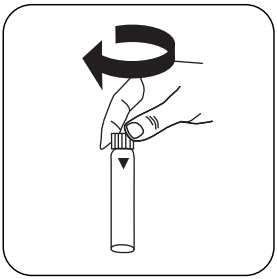
Once the reaction period is finished, the measurement takes place automatically.



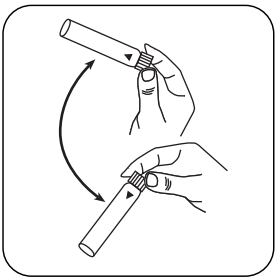
Fill a **second vial** with **10 mL sample** .



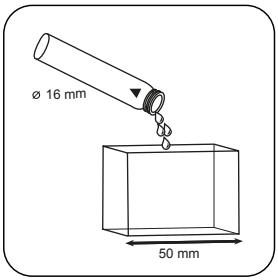
Add **CHROMIUM HEXAVALENT powder pack**.



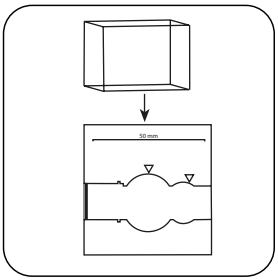
Close vial(s).



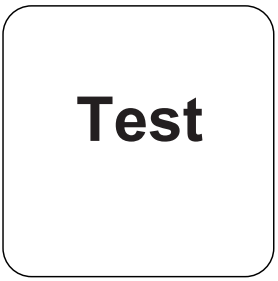
Invert several times to mix the contents.



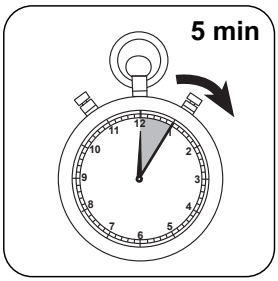
Fill 50 mm vial with prepared sample.



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); mg/l Cr(III); mg/l Cr Total Chromium appears on the display.

Chemical Method

Diphenylcarbazide

Appendix

Calibration function for 3rd-party photometers

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

	□ **50 mm**
a	-6.54461 • 10^{+0}
b	2.44266 • 10^{+2}
c	6.29996 • 10^{+0}
d	
e	
f	

Interferences

Persistant 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.

Derived from

DIN 18412
US EPA 218.6

[b] Reactor is necessary for COD (150 °C), TOC (120 °C) and total -chromium, - phosphate, -nitrogen, (100 °C)