Iron 10 T M218

0.05 - 1 mg/L Fe

Ferrozine / Thioglycolate

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	□ 10 mm	562 nm	0.05 - 1 mg/L Fe

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Iron II LR (Fe^{2+})	Tablet / 100	515420BT
Iron II LR (Fe^{2+})	Tablet / 250	515421BT
Iron LR (Fe^{2+} und Fe^{3+})	Tablet / 100	515370BT
Iron LR (Fe^{2+} und Fe^{3+})	Tablet / 250	515371BT

Application List

- Waste Water Treatment
- Cooling Water
- Boiler Water
- Galvanization
- Drinking Water Treatment
- Raw Water Treatment

Preparation

1. Water that has been treated with organic compounds such as corrosion inhibitors, must be oxidised where necessary to break down the iron complex. 1 ml of concentrated Sulphuric acid (≥ 95 %) and 1 ml concentrated Nitric acid (≥ 65 %) is therefore added to to 100 ml water sample and boiled down to approximately half the volume. After cooling down, the digestion procedure is continued.

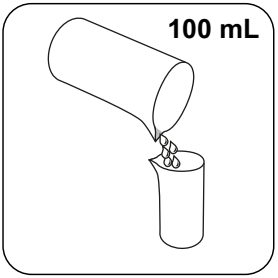
Notes

1. This method is for the determination of total dissolved Fe^{2+} and Fe^{3+}.
2. For the determination of Fe^{2+}, the IRON (II) LR Tablet, instead of the IRON LR Tablet is used.

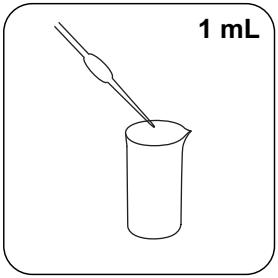
Variations in the length of the vial can extend the measuring range:

- 10 mm vial: 0.05 mg/L - 1 mg/L, solution: 0.01
- 20 mm vial: 0.025 mg/L - 0.5 mg/L, solution: 0.01
- 50 mm vial: 0,.1 mg/L - 0.2 mg/L, solution: 0.001

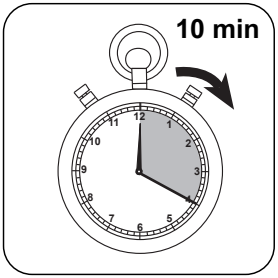
Digestion



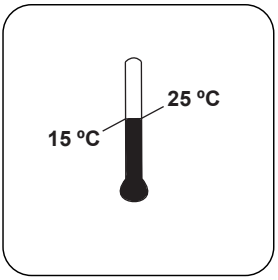
Fill a suitable sample vessel with **100 mL sample** .



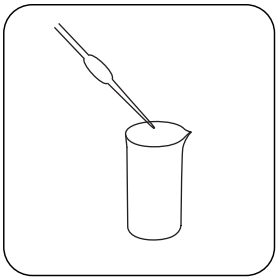
Add **1 mL concentrated sulfuric acid (≥ 95 %)** .



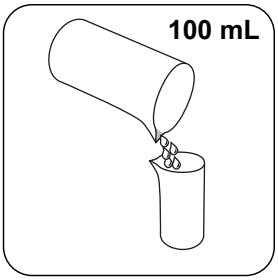
The sample is to be **heated for 10 minutes,** or for as long as it takes for everything to be completely dissolved.



Allow the sample to cool to room temperature.



Adjust **pH-value** of the sample with **ammonia solution (10-25 %) to 3-5**.



Fill the sample with **deionised water to 100 mL** .

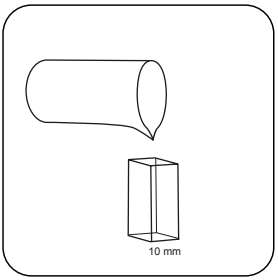
This sample is used for the analysis of total solved and dissolved Iron.

Determination of Iron (II,III), dissolved with Tablet

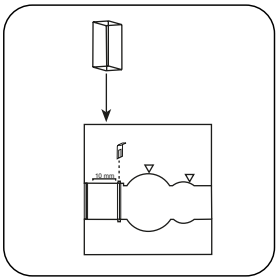
Select the method on the device.

For testing of **total solved and dissolved Iron,** carry out the described **digestion**.

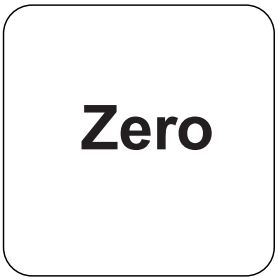
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



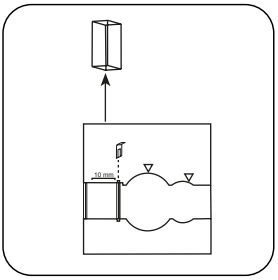
Fill 10 mm vial with **sample**.



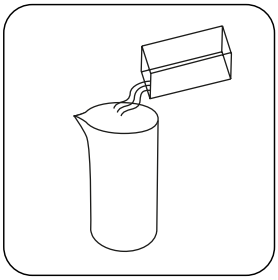
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



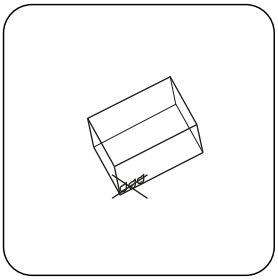
Press the **ZERO** button.



Remove **vial** from the sample chamber.

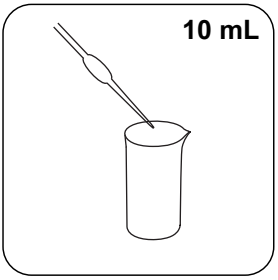


Empty vial.



Dry the vial thoroughly.

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



Fill a suitable sample vessel with **10 mL sample**

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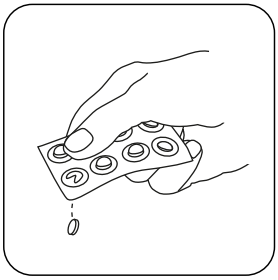
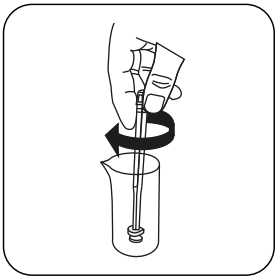
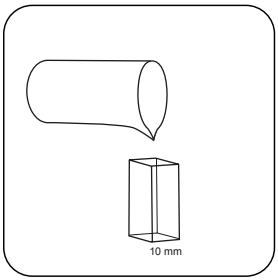


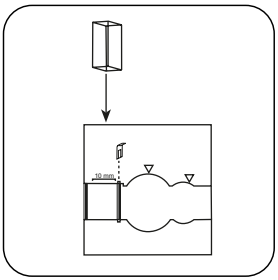
Add **IRON LR tablet**.



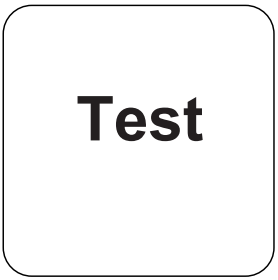
Crush tablet(s) by rotating slightly and dissolve.



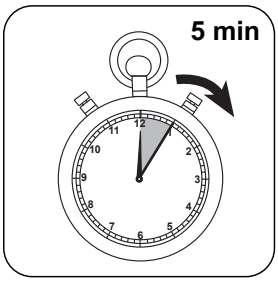
Fill 10 mm vial with **sample**.



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 Iron appears on the display.

Chemical Method

Ferrozine / Thioglycolate

Appendix

Calibration function for 3rd-party photometers

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

	□ **10 mm**
a	-3.64722 • 10^{-2}
b	1.98546 • 10^{+0}
c	
d	
e	
f	

Interferences

Removeable Interferences

1. The presence of copper increases the test result by 10%. At a concentration of 10 mg/L copper in the sample, the measurement result is increased by 1 mg/L iron. The interference can be eliminated by the addition of thiourea

Bibliography

Photometrische Analyse, Lange/ Vjedelek, Verlag Chemie 1980, p. 102