**Manganese L****M245****0.05 - 5 mg/L Mn****Formaldehyde****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	ø 24 mm	430 nm	0.05 - 5 mg/L Mn
XD 7000, XD 7500	ø 24 mm	450 nm	0.05 - 5 mg/L Mn

Material

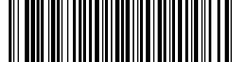
Required material (partly optional):

Reagents	Packaging Unit	Part Number
Manganese L, Reagent Pack	1 pc.	56R024055

Application List

- Galvanization
- Drinking Water Treatment
- Raw Water Treatment

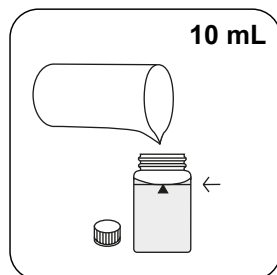




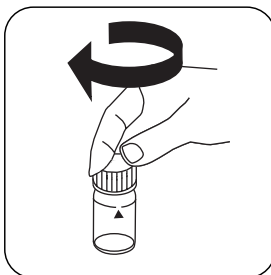
Determination of Manganese with liquid reagent

Select the method on the device.

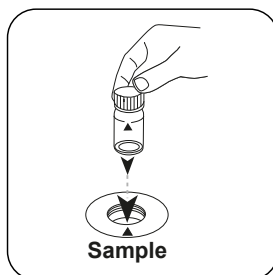
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



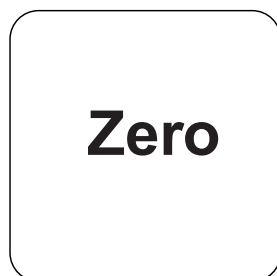
Fill 24 mm vial with **10 mL sample**.



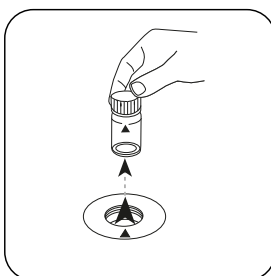
Close vial(s).



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

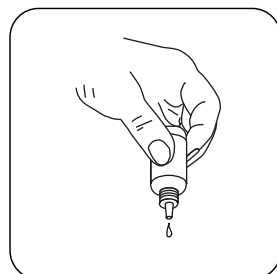


Press the **ZERO** button.

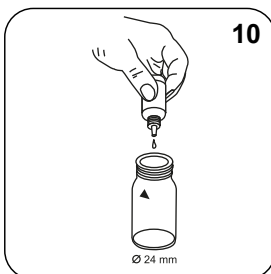


Remove the vial from the sample chamber.

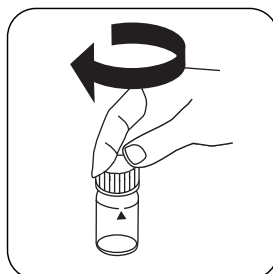
For devices that require **no ZERO measurement**, start here.



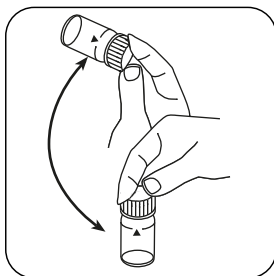
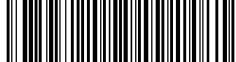
Hold cuvettes vertically and add equal drops by pressing slowly.



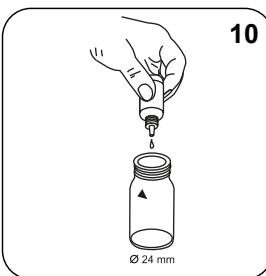
Add **10 drops KS265 (Manganese Reagent A)**.



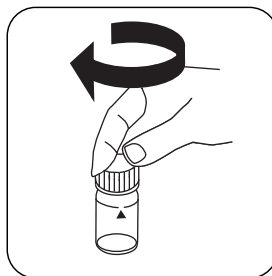
Close vial(s).



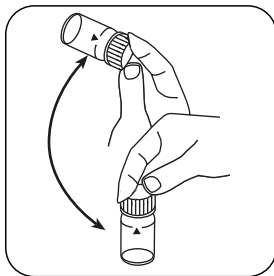
Invert several times to mix the contents.



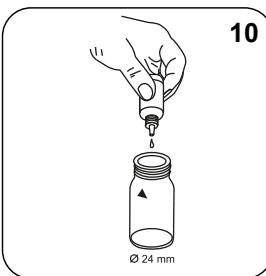
Add **10 drops**
**KS266 (Manganese
Reagent B).**



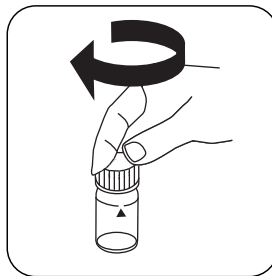
Close vial(s).



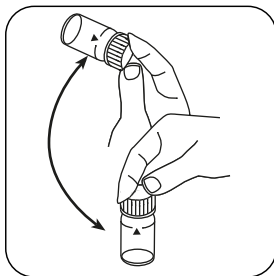
Invert several times to mix the contents.



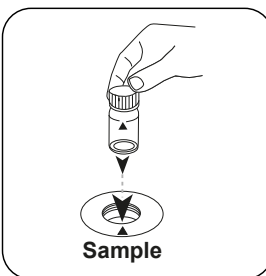
Add **10 drops**
**KS304 (Manganese
Reagent C).**



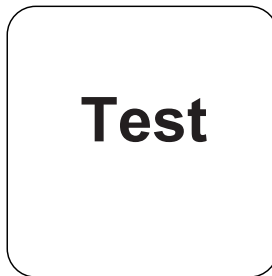
Close vial(s).



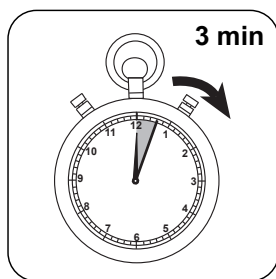
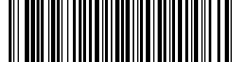
Invert several times to mix the contents.



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



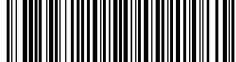
Press the **TEST** (XD:
START) button.



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

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

The result in mg/L Manganese appears on the display.



Analyses

The following table identifies the output values can be converted into other citation forms.

Unit	Cite form	Scale Factor
mg/l	Mn	1
mg/l	MnO ₄	2.17
mg/l	KMnO ₄	2.88

Chemical Method

Formaldehyde

Appendix

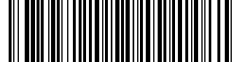
Calibration function for 3rd-party photometers

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

	ø 24 mm	□ 10 mm
a	$-6.20417 \cdot 10^{-2}$	$-5.24512 \cdot 10^{-2}$
b	$2.8192 \cdot 10^{-0}$	$6.04027 \cdot 10^{-0}$
c		
d		
e		
f		

Interferences

Interference	from / [mg/L]
Ca	500
Na	500
Ni	0,5
Fe	5
Cr	5



Method Validation

Limit of Detection	0.01 mg/L
Limit of Quantification	0.04 mg/L
End of Measuring Range	5 mg/L
Sensitivity	2.8 mg/L / Abs
Confidence Intervall	0.03 mg/L
Standard Deviation	0.01 mg/L
Variation Coefficient	0.46 %

Bibliography

Gottlieb, A. & Hecht, F. Mikrochim Acta (1950) 35: 337

According to

DIN 38406-E2