Formaldehyde 10 M. L M175

1.00 - 5.00 mg/L HCHO

H_2SO_4 / Chromotropic acid

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	585 nm	1.00 - 5.00 mg/L HCHO

Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Formaldehyde Spectroquant 1.14678.0001 tube test [d)]	25 pc.	420751

Application List

- Waste Water Treatment

Preparation

1. Before performing the test, you must read through the original instructions and safety advice that is delivered with the test kit (MSDS are available on the home-page of www.merckmillipore.com).

Notes

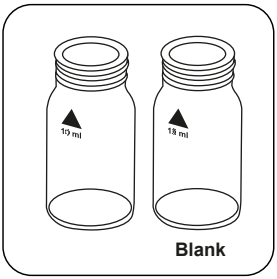
1. This method is adapted from MERCK.
2. Spectroquant® is a registered trademark of the company MERCK KGaA.
3. Appropriate safety precautions and good laboratory technique should be used during the whole procedure.
4. Sample volume should always be metered by using a 3ml volumetric pipette (class A).
5. Because the reaction depends on temperature, the sample temperature must be between 20 °C and 25 °C.

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

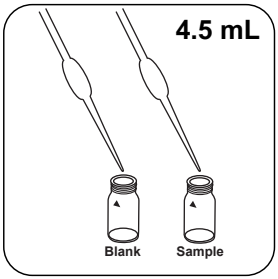
- 10 mm vial: 0.1 mg/L - 5 mg/L, solution: 0.01
- 20 mm vial: 0.05 mg/L - 2.5 mg/L, solution: 0.01
- 50 mm vial: 0.02 mg/L - 1.0 mg/L, solution: 0.001

Determination of Formaldehyde with MERCK Spectroquant® Test, No. 1.14678.0001

Select the method on the device.

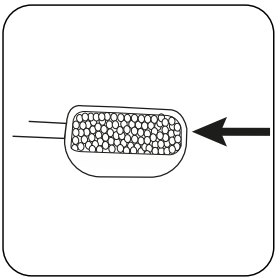


Prepare two clean 24 mm vials. Mark one as a blank.

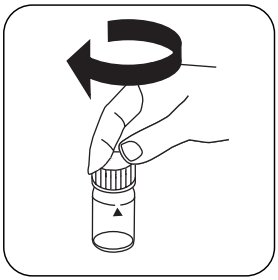


Add **4.5 mL HCHO-1 solution** to each vial.

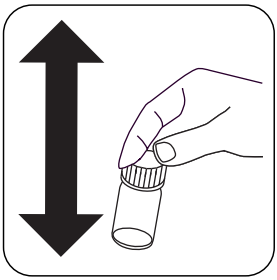
Note: Reagent contains concentrated Sulphuric acid!



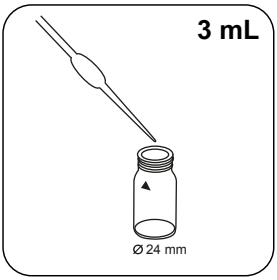
Add exactly **one level microspoon HCHO-2**.



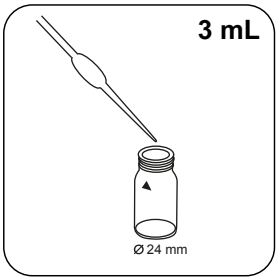
Close vial(s).



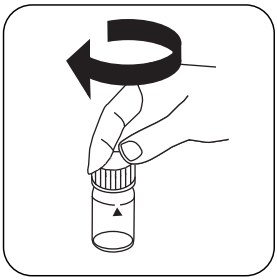
Dissolve the contents by shaking.



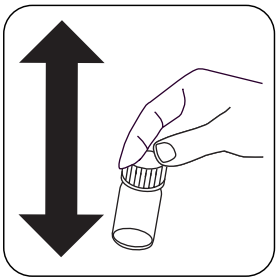
Put **3 mL deionised water** in the blank.



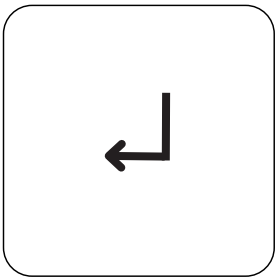
Put **3 mL sample** in the sample vial.



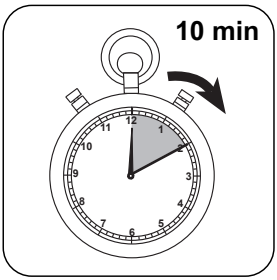
Close vial(s).



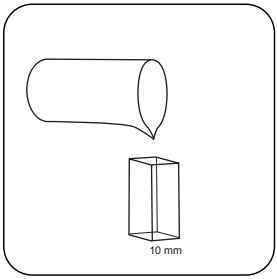
Mix the contents by shaking.



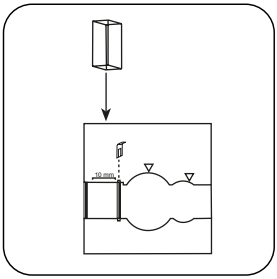
Press the **ENTER** button.



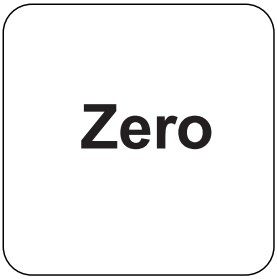
Wait for **10 minute(s) reaction time**.



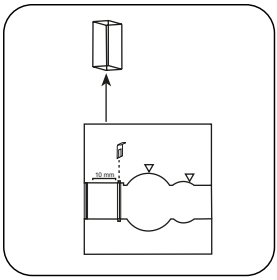
Fill **10 mm vial** with **zero sample** .



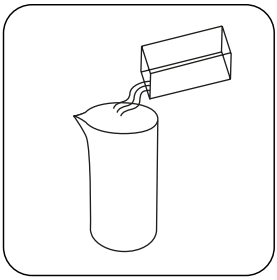
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



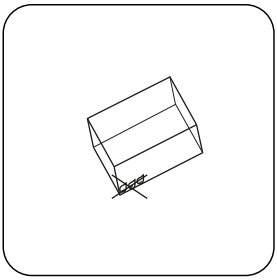
Press the **ZERO** button.



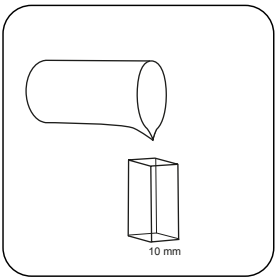
Remove **vial** from the sample chamber.



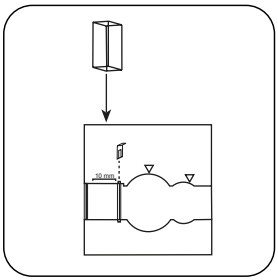
Empty vial.



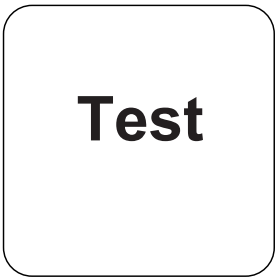
Dry the vial thoroughly.



Fill 10 mm vial with **sample**.



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



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

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

Chemical Method

H_2SO_4 / Chromotropic acid

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	$5.21412 \cdot 10^{-2}$
b	$3.77025 \cdot 10^{+0}$
c	
d	
e	
f	

Interferences

Interference	**from / [mg/L]**
Al	1000
Ca^{2+}	1000
Cd^{2+}	100
CN^-	100
CO_3^{2-}	100
Cr^{3+}	1000
$Cr_2O_7^{2-}$	1000
Cu^{2+}	100
F^-	100
Fe^{3+}	10
Hg^{2+}	1000
Mg^{2+}	1000
Mn^{2+}	1000
NH_4^+	1000
Ni^{2+}	100
NO_2^-	1

Interference	from / [mg/L]
NO_3^-	10
Pb^{2+}	100
PO_4^{3-}	100
S^{2-}	10
SCN^-	100
SiO_4^{4-}	100
SO_3^{2-}	100
Zn^{2+}	1000
EDTA	1000
$H_2N\text{-}NH_2$	100
Surfactants	100
H_2O_2	10
NaAc	0.05
NaCl	0.25
$NaNO_3$	0.005
Na_2SO_4	0.5

Bibliography

Georghiou P.E., Ho C.K., Can. J. Chem. 67, 871 (1989)

[d] Spectroquant® is a Merck KGaA Trademark