



Formaldehyde 10 M. L

175

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 homepage of www.merckmillipore.com).

Notes

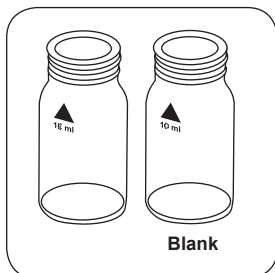
1. This method is adapted from MERCK.
2. Spectroquant® is a registered trademark of the company MERCK KGaA.
3. Appropriate safety precautions and good laboratory technique should be used during the whole procedure.
4. Sample volume should always be metered by using a 3ml volumetric pipette (class A).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

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

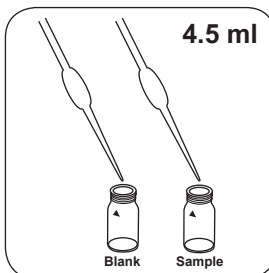
- 10 mm vial: 0.1 mg/l - 5 mg/l, solution: 0.01
- 20 mm vial: 0.05 mg/l - 2.5 mg/l, solution: 0.01
- 50 mm vial: 0.02 mg/l - 1.0 mg/l, solution: 0.001

Implementation of the provision Formaldehyde with MERCK Spectroquant® Test, No. 1.14678.0001

Select the method on the device



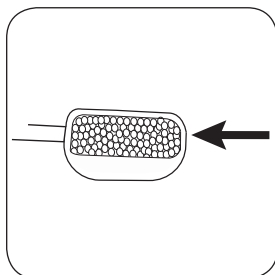
Prepare two clean 24 mm vials. Mark one as a blank.



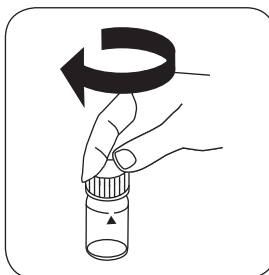
Add 4.5 ml HCHO-1 solution to each vial.



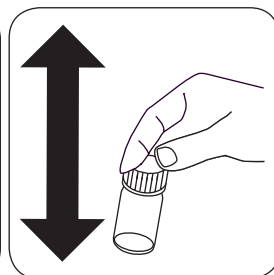
Note: Reagent contains concentrated Sulphuric acid!



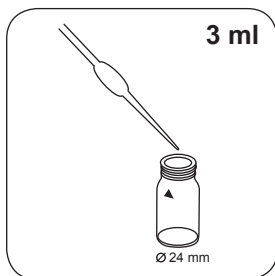
Add exactly **one level microspoon HCHO-2**.



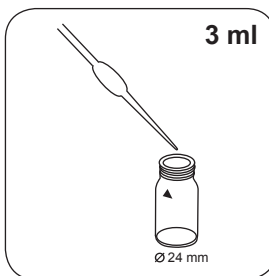
Close vial(s).



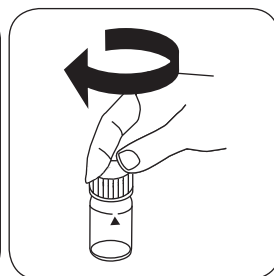
Dissolve the contents by shaking.



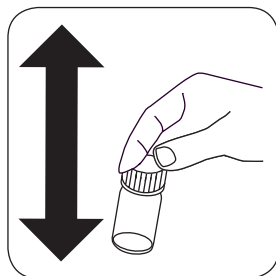
Put 3 ml deionised water in the blank.



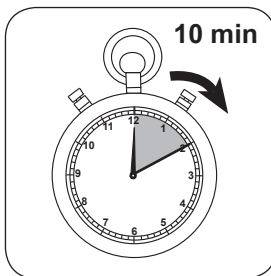
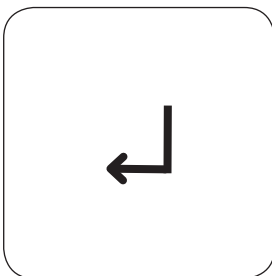
Put 3 ml sample in the sample vial.



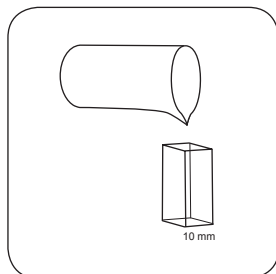
Close vial(s).



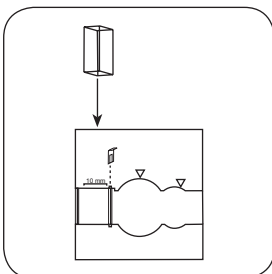
Mix the contents by shaking. Press the **ENTER** button.



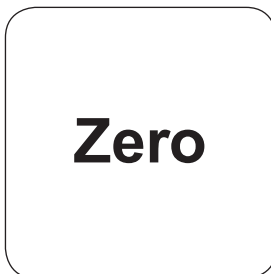
Wait for **10 minute(s) reaction time**.



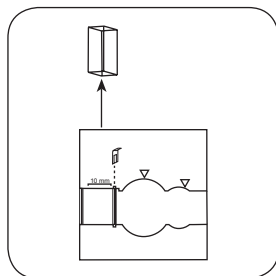
Fill **10 mm vial** with **zero sample**.



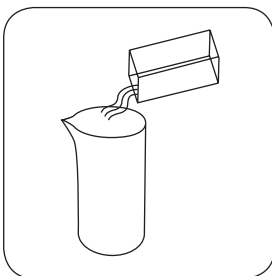
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



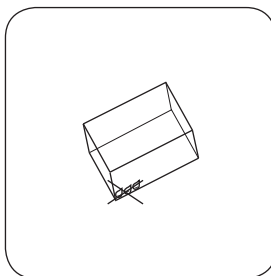
Press the **ZERO** button.



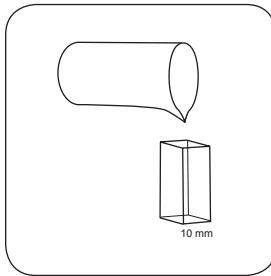
Remove **vial** from the sample chamber.



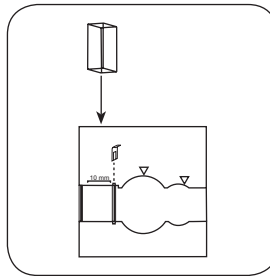
Empty vial.



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

H₂SO₄ / Chromotropic acid

Appendix

Interferences

Interference	from / [mg/l]
Al	1000
Ca ²⁺	1000
Cd ²⁺	100
CN ⁻	100
CO ₃ ²⁻	100
Cr ³⁺	1000
Cr ₂ O ₇ ²⁻	1000
Cu ²⁺	100
F ⁻	100
Fe ³⁺	10
Hg ²⁺	1000
Mg ²⁺	1000
Mn ²⁺	1000
NH ₄ ⁺	1000
N ²⁺	100
NO ₂ ⁻	1

Method Validation

End of Measuring Range	5 mg/l
Sensitivity	0.04 mg/l
Confidence Range	0.12 %
Standard Deviation	0.049 µg
Variation Coefficient	1.30 %

Bibliography

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

^{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 inso-

uble iron oxides without digestion | ^{h)} additionally required for samples with hardness values above 300 mg/l CaCO₃ |
^{h)} high range by dilution | ^{g)} including stirring rod, 10 cm