

REF 985 017

en

Test 0-17

10.14

**NANOCOLOR® Chlorine / Ozone 2****Method:**

Photometric determination of free chlorine, total chlorine and ozone with *N,N*-diethyl-1,4-phenylene diamine (DPD) / potassium iodide

Range:	<b>0.05–2.50 mg/L Cl<sub>2</sub></b>	<b>0.05–2.00 mg/L O<sub>3</sub></b>	<b>0.09–4.80 mg/L ClO<sub>2</sub></b>
Factor:	<b>02.96</b>	<b>02.11</b>	<b>05.62</b>
Wavelength (HW = 5–12 nm):	<b>540 nm</b>		
Reaction time:	<b>1 min (free)</b>	<b>2 min</b>	<b>1 min</b>
	<b>3 min (total)</b>		
Reaction temperature:	<b>20–25 °C</b>		

**Contents of reagent set:**

20 test tubes Chlorine / Ozone 2

1 bottle with 5 mL Chlorine / Ozone 2 R2

**Hazard warning:**

This test does not contain any harmful substances which must be specially labelled as hazardous.

**Interferences:**

Turbidity caused by suspended matter can be removed with the membrane filtration kit (REF 916 50). Chlorine concentrations > 20 mg/L can bleach the red reaction color (low results). The determination of free chlorine measures bromine, bromoamines, chloramines, iodine and chlorine dioxide as well. Oxidizing manganese compounds simulate free chlorine.

The method can be applied also for the analysis of sea water.

**Notes:**

For the determination of ozone besides chlorine please contact MACHEREY-NAGEL for special working instructions.

Determination of bromine besides chlorine: If chlorine is present in the sample, it can be destroyed by adding a spatula of glycine (approx. 20 mg) to 25 mL sample. The sample for the bromine determination is taken from this solution. Result in mg/L Cl<sub>2</sub> x 2.25 = mg/L Br<sub>2</sub>.

**Procedure:**

Requisite accessories: piston pipette with tips

**Free chlorine / Chlorine dioxide**

Open test tube, add

**4.0 mL** sample solution (*the pH value of the sample must be between pH 3 and 10*), close and shake vigorously.

Air bubbles can be removed by slowly turning the test tube.

Clean outside of test tube and measure after 1 min [method 0171 or 0174].

**Total chlorine**

Immediately after measurement of free chlorine open test tube again, add

**3 drops** R2, close and mix.

Clean outside of test tube and measure after 3 min [method 0172].

**Ozone** <sup>[1]</sup>

Open another test tube, add

**3 drops** R2 and fill test tube with

sample solution (*the pH value of the sample must be between pH 3 and 10*) to lower rim of imprinted mark (≈ 5 mL), close and mix.

Clean outside of test tube and measure after 2 min [method 0173].

<sup>[1]</sup> In order to prevent false low readings, pipette usage is avoided.

**Measurement:**

For *NANOCOLOR*® photometers and PF-12 see manual, test 0-17.

**Conversion:**

0.10 mg/L Cl<sub>2</sub> ≈ 0.19 mg/L ClO<sub>2</sub> ≈ 0.15 mg/L OCl<sup>-</sup> ≈ 0.21 mg/L NaOCl ≈ 0.23 mg/L Br<sub>2</sub> ≈ 0.36 mg/L I<sub>2</sub>

**Measurement when samples are colored or turbid:**

For all *NANOCOLOR*® photometers see manual, use key for correction value.

**Photometers of other manufacturers:**

For other photometers check whether measurement of round glass tubes is possible. Verify factor for each type of instrument by measuring standard solutions.

**Analytical quality control:**

*NANOCONTROL* Chlorine (REF 925 17), special application in instructions for use!

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