



Ozone PP

M301

0.015 - 1.2 mg/L O<sub>3</sub>

DPD / Glycine

## 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	$\lambda$	Measuring Range
MD 600, MD 610, MD 640	ø 24 mm	530 nm	0.015 - 1.2 mg/L O <sub>3</sub>
SpectroDirect, XD 7000, XD 7500	ø 24 mm	510 nm	0.015 - 1.2 mg/L O <sub>3</sub>

## Material

Required material (partly optional):

Reagents	Packaging Unit	Part Number
Chlorine Total DPD F10	Powder / 100 pc.	530120
Chlorine Total DPD F10	Powder / 1000 pc.	530123
Glycine <sup>9)</sup>	Tablet / 100	512170BT
Glycine <sup>9)</sup>	Tablet / 250	512171BT

## Application List

- Drinking Water Treatment
- Boiler Water
- Waste Water Treatment
- Raw Water Treatment
- Disinfection Control

## Preparation

1. Cleaning of vials:  
As many household cleaners (e.g. dishwasher detergent) contain reducing substances, the subsequent determination of oxidising agents (e.g. ozone and chlorine) may show lower results. To avoid measurement errors, the glassware used should be free of chlorine consumption. To achieve this, all glassware should be placed in a sodium hypochlorite solution (0.1 g/L) for one hour and then rinsed thoroughly with deionised water.
2. When preparing the sample, Ozone outgassing, e.g. through the pipette or shaking, must be avoided. The analysis must take place immediately after taking the sample.
3. Strong alkaline or acidic water samples must be adjusted between pH 6 and pH 7 before the analysis (use 0.5 mol/l Sulphuric acid or 1 mol/l Sodium hydroxide).



## Determination of Ozone, in presence of chlorine with powder packs

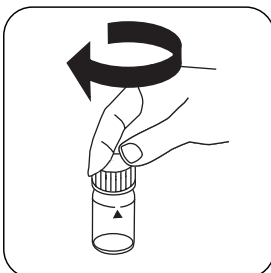
Select the method on the device.

In addition, choose the test: in presence of Chlorine

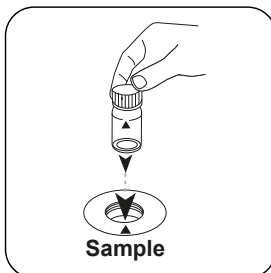
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



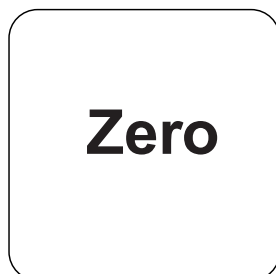
Fill 24 mm vial with **10 mL sample**.



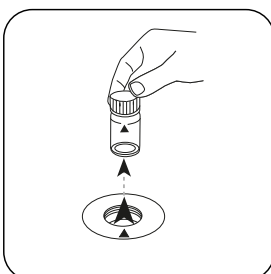
Close vial(s).



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

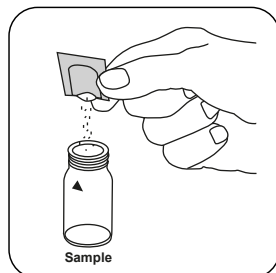


Press the **ZERO** button.

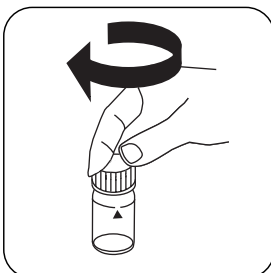


Remove the vial from the sample chamber.

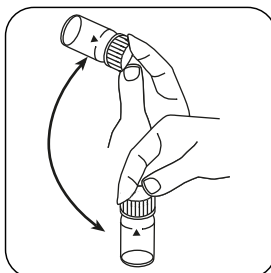
For devices that require **no ZERO measurement**, start here.



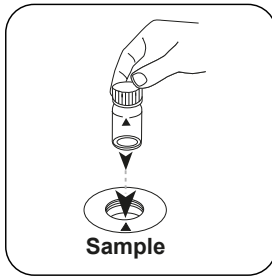
Add **Chlorine TOTAL-DPD/F 10 powder pack**.



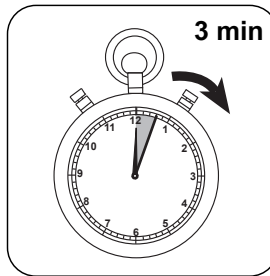
Close vial(s).



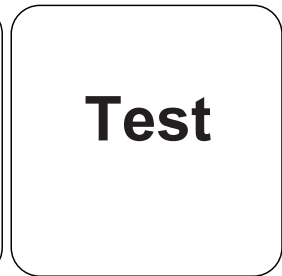
Invert several times to mix the contents (20 sec.).



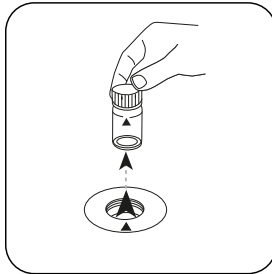
Place **sample vial** in the sample chamber. Pay attention to the positioning.



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



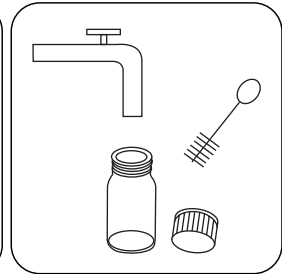
Press the **TEST (XD: START)** button.



Remove the vial from the sample chamber.



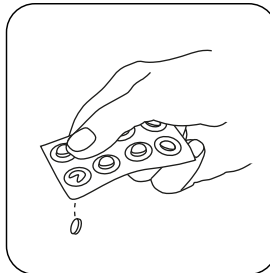
Empty vial.



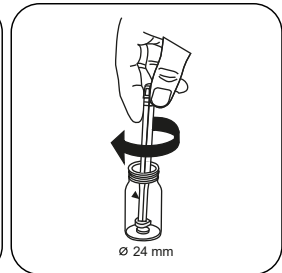
Thoroughly clean the vial and vial cap.



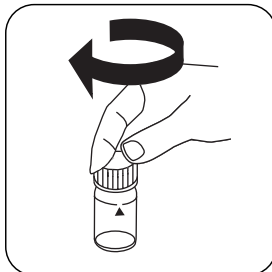
Fill 24 mm vial with **10 mL sample**.



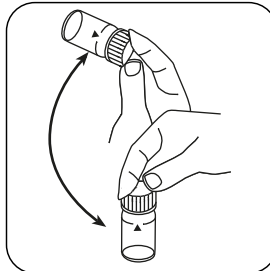
Add **GLYCINE tablet**.



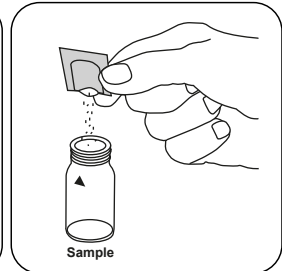
Crush tablet(s) by rotating slightly.



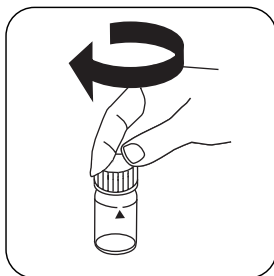
Close vial(s).



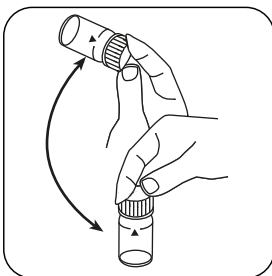
Dissolve tablet(s) by inverting.



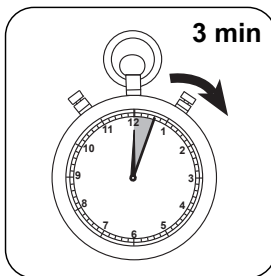
Add **Chlorine TOTAL-DPD/F 10 powder pack**.



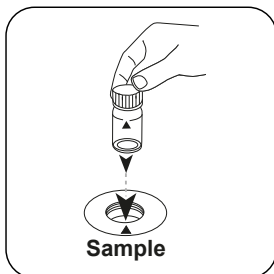
Close vial(s).



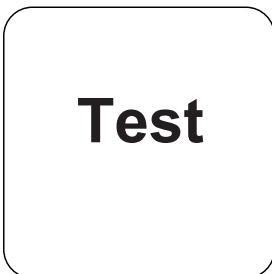
Invert several times to mix the contents (20 sec.).



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



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



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

The result in mg/L Ozone, mg/l total chlorine appears on the display.

## Determination of Ozone, in absence of chlorine with powder packs

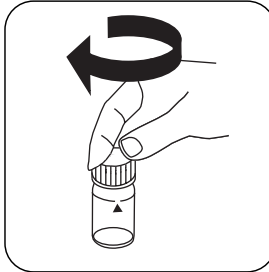
Select the method on the device.

In addition, choose the test: without Chlorine

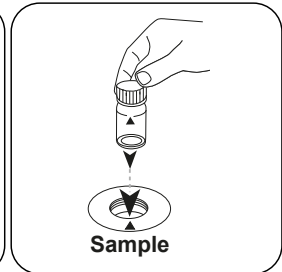
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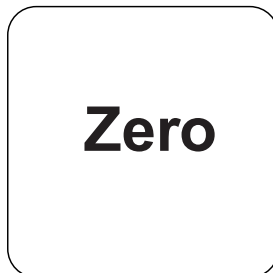
Fill 24 mm vial with **10 mL sample**.



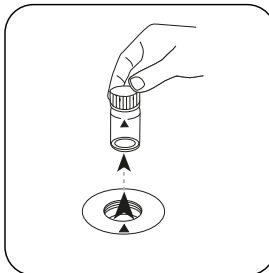
Close vial(s).



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

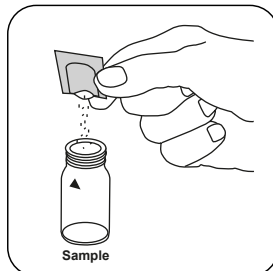


Press the **ZERO** button.

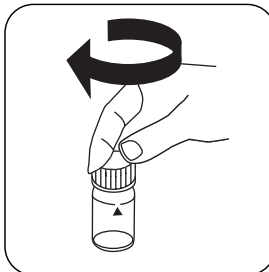


Remove the vial from the sample chamber.

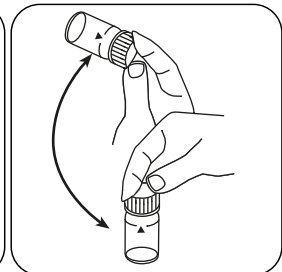
For devices that require **no ZERO measurement**, start here.



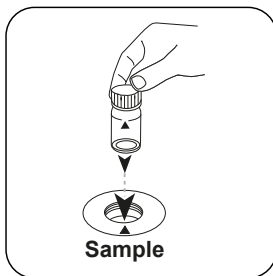
Add **Chlorine TOTAL-DPD/F 10 powder pack**.



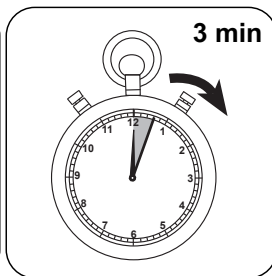
Close vial(s).



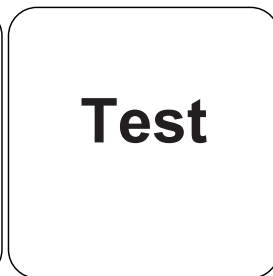
Invert several times to mix the contents (20 sec.).



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



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



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

The result in mg/L Ozone 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	O <sub>3</sub>	1
mg/l	Cl <sub>2</sub>	1.4771

## Chemical Method

DPD / Glycine

### Calibration function for 3rd-party photometers

Conc. = a + b•Abs + c•Abs<sup>2</sup> + d•Abs<sup>3</sup> + e•Abs<sup>4</sup> + f•Abs<sup>5</sup>

	ø 24 mm	□ 10 mm
a	-3.94263•10 <sup>-2</sup>	-3.94263•10 <sup>-2</sup>
b	1.70509•10 <sup>-0</sup>	3.66594•10 <sup>-0</sup>
c		
d		
e		
f		

## Interferences

### Persistent Interferences

1. All oxidising agents in the samples react like chlorine, which leads to higher results.
2. Concentrations above 6 mg/L Ozone can lead to results within the measuring range of up to 0 mg/L. In this case, the water sample must be diluted. 10 ml of the diluted sample should be mixed with the reagent and the measurement taken again (plausibility test).





## Method Validation

<b>Limit of Detection</b>	0.01 mg/L
<b>Limit of Quantification</b>	0.03 mg/L
<b>End of Measuring Range</b>	2 mg/L
<b>Sensitivity</b>	1.68 mg/L / Abs
<b>Confidence Intervall</b>	0.033 mg/L
<b>Standard Deviation</b>	0.014 mg/L
<b>Variation Coefficient</b>	1.34 %

<sup>9</sup> additionally required for determination of bromine, chlorine dioxide and ozone in the presence of chlorine