

Bromine 10 T

M78

0.1 - 3 mg/L Br₂

DPD

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 | 510 nm | 0.1 - 3 mg/L Br ₂ |

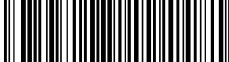
Material

Required material (partly optional):

| Reagents | Packaging Unit | Part Number |
|--------------------------------------|----------------|-------------|
| DPD No.1 | Tablet / 100 | 511050BT |
| DPD No. 1 | Tablet / 250 | 511051BT |
| DPD No. 1 | Tablet / 500 | 511052BT |
| DPD No. 1 High Calcium ^{a)} | Tablet / 100 | 515740BT |
| DPD No. 1 High Calcium ^{a)} | Tablet / 250 | 515741BT |
| DPD No. 1 High Calcium ^{a)} | Tablet / 500 | 515742BT |

Application List

- Disinfection Control
- Raw Water Treatment
- Pool Water 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, Bromine 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).

Notes

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

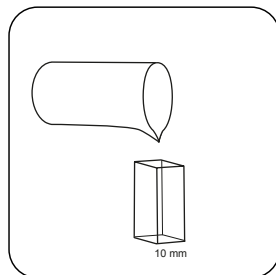
- 10 mm vial: 0.1 mg/L - 3 mg/L, solution: 0.01
- 20 mm vial: 0.05 mg/L - 1.5 mg/L, solution: 0.01
- 50 mm vial: 0.02 mg/L - 0.6 mg/L, solution: 0.001



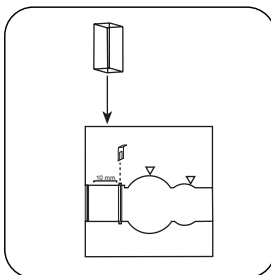
Determination of Bromine with Tablet

Select the method on the device.

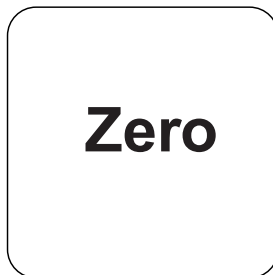
For this method, a ZERO measurement does not have to be carried out every time on the following devices: XD 7000, XD 7500



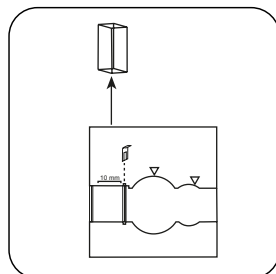
Fill 10 mm vial with sample.



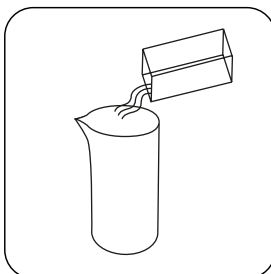
Place **sample vial** in the sample chamber. • Pay attention to the positioning.



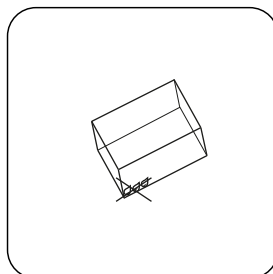
Press the **ZERO** button.



Remove **vial** from the sample chamber.

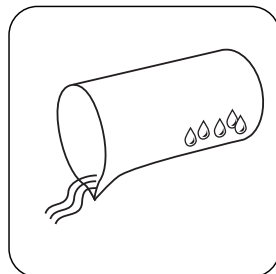


Empty vial.

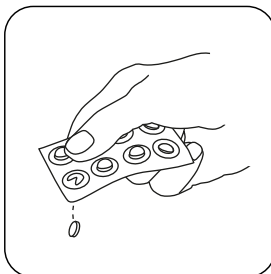


Dry the vial thoroughly.

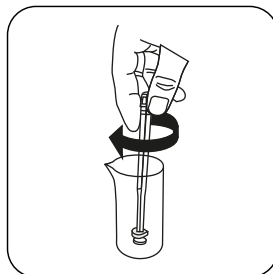
For devices that require **no ZERO measurement** , **start here**.



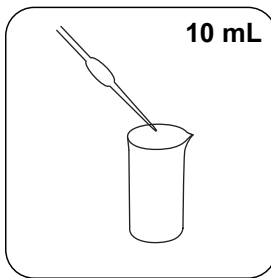
Rinse a beaker **with the sample and empty it**, leaving a few drops remaining in the beaker.



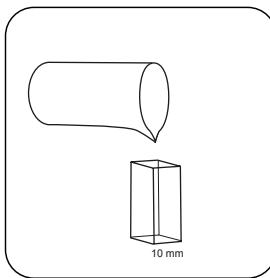
Add **DPD No. 1 tablet** .



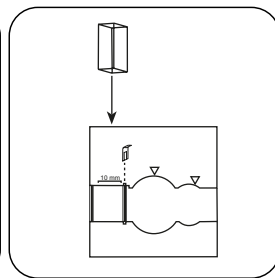
Crush tablet(s) by rotating slightly and dissolve.



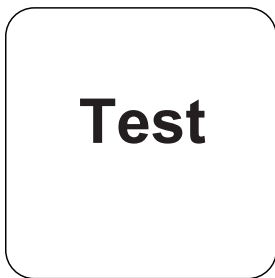
Add **10 mL sample**.



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

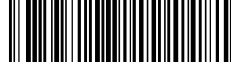


Place **sample vial** in the **sample chamber**. • Pay attention to the positioning.



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

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



Chemical Method

DPD

Appendix

Calibration function for 3rd-party photometers

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

| | □ 10 mm |
|---|--------------------------|
| a | $-3.47814 \cdot 10^{-2}$ |
| b | $8.22863 \cdot 10^{-0}$ |
| c | $7.07422 \cdot 10^{-0}$ |
| d | |
| e | |
| f | |

Interferences

Persistent Interferences

1. All oxidising agents in the samples react like bromine, which leads to higher results.
2. Concentrations above 22 mg/L Bromine 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).

Derived from

US EPA 330.5 (1983)

APHA Method 4500 Cl-G

^{o)} 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