



Hardness Ca and Mg L

M199

0.05 - 4 mg/L CaCO₃

Calmagite

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 |
|--|---------|-----------|---------------------------------|
| MD 600, MD 610, MD 640, PM 620, PM 630, XD 7000, XD 7500 | ø 24 mm | 530 nm | 0.05 - 4 mg/L CaCO ₃ |

Material

Required material (partly optional):

| Reagents | Packaging Unit | Part Number |
|-----------------------------|----------------|-------------|
| Ca Mg Hardness Set | 1 pc. | 475100 |
| Ca Mg Hardness Sol 1, 15 mL | 15 mL | 471210 |
| Ca Mg Hardness Sol 2, 15 mL | 15 mL | 471200 |
| Ca Mg Hardness Sol 3 - 5 mL | 5 mL | 471230 |
| Ca Mg Hardness Sol 4 - 5 mL | 5 mL | 471220 |

Application List

- Drinking Water Treatment
- Raw Water Treatment
- Waste Water Treatment

Preparation

Cleaning the vials:

1. To avoid errors, rinse the vials and lids thoroughly with deionised water (demineralised water) before use.

Notes

1. On the XD7x00 the method is implemented under the method number M2511.



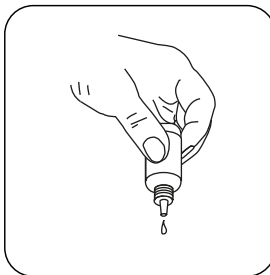


Determination of Hardness Calcium and Magnesium with liquid reagens

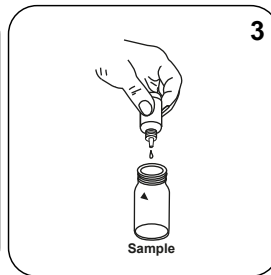
Select the method on the device.



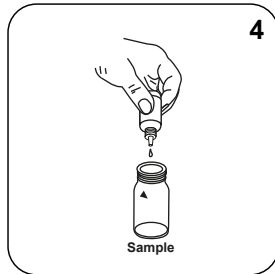
Fill 24 mm vial with **10 mL sample**.



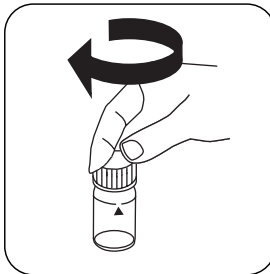
Hold cuvettes vertically and add equal drops by pressing slowly.



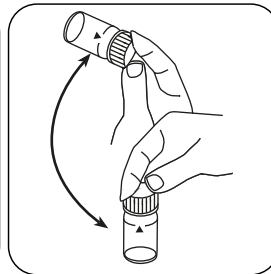
Add **3 drops Ca Mg Hardness SOL 1 (red bottle)** to the **sample vial**.



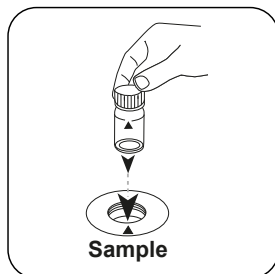
Add **4 drops Ca Mg Hardness SOL 2 (blue bottle)** to the **sample vial**.



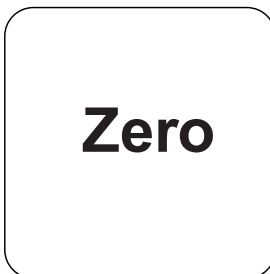
Close vial(s).



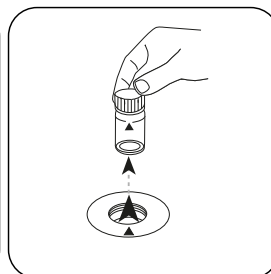
Invert several times to mix the contents (10x).



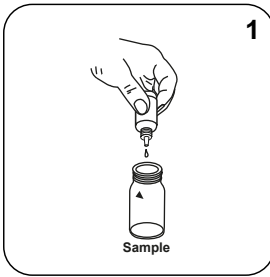
Place **sample vial** in the sample chamber. Pay attention to the positioning.



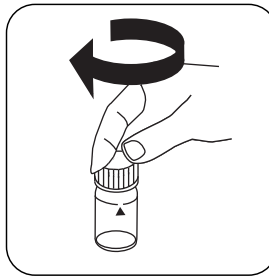
Press the **ZERO (XD: START)** button.



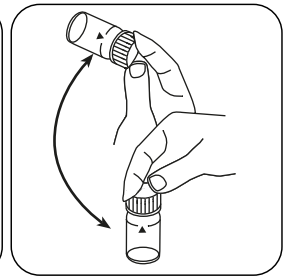
Remove the vial from the sample chamber.



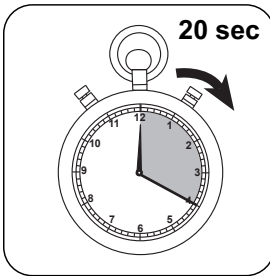
Add **1 drop** Ca Mg Hardness SOL 3 (green bottle) to the sample vial.



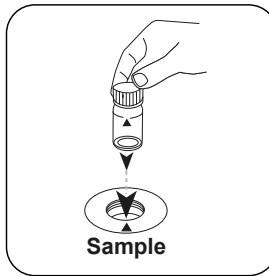
Close vial(s).



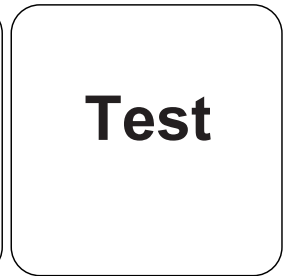
Invert several times to mix the contents.



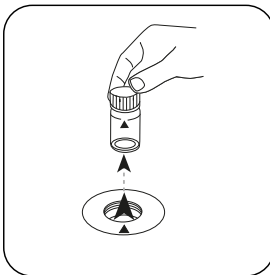
Wait for **20 second(s)** reaction time.



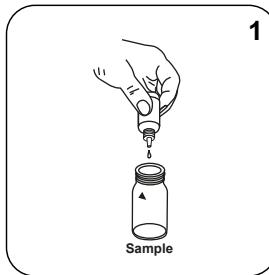
Place **sample vial** in the sample chamber. Pay attention to the positioning.



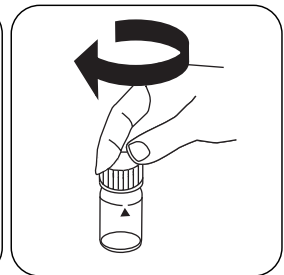
Press the **TEST** (XD: **START**) button.



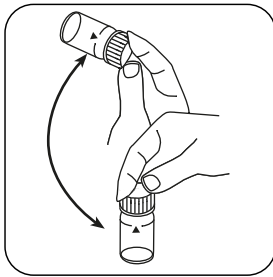
Remove the vial from the sample chamber.



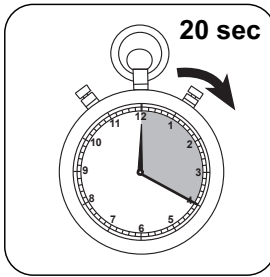
Add **1 drop** Ca Mg Hardness SOL 4 (white bottle) to the **sample vial**.



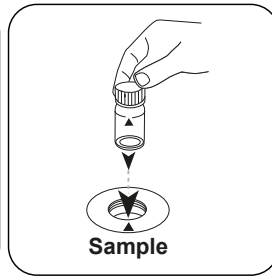
Close vial(s).



Invert several times to mix the contents.



Wait for **20 second(s)** reaction time.



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

Test

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

The result in **mg/L** [Ca]-CaCO₃ and [Mg]-CaCO₃ 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 | CaCO ₃ | 1 |
| mg/L | Ca | 0.4004 |
| mg/L | MgCO ₃ | 0.8424 |
| mg/L | Mg | 0.2428 |
| | °dH | 0.0560 |

Chemical Method

Calmagite

Interferences

Removeable Interferences

The Ca determination is disturbed by high Mg contents. For accurate Ca measurements, a dilution should be carried out.

| Interference | from / [mg/L] |
|------------------|---------------|
| Cr ³⁺ | 0.25 |
| Cu ²⁺ | 0.75 |
| Fe ²⁺ | 1.4 |
| Fe ³⁺ | 2.0 |
| Mn ²⁺ | 0.20 |
| Zn ²⁺ | 0.050 |