

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

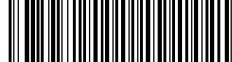
Cleaning the vials:

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.



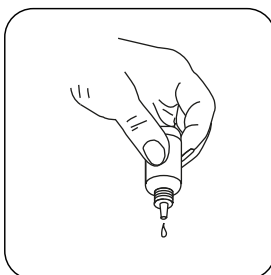


Determination of Hardness Calcium and Magnesium with liquid reagents

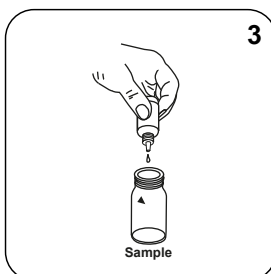
Select the method on the device.



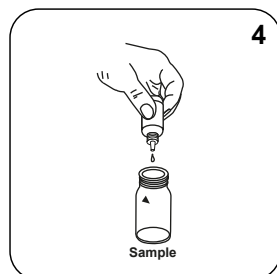
Fill 24 mm vial with **10 mL sample**.



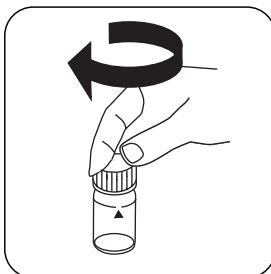
Hold cuvettes vertically and add equal drops by pressing slowly.



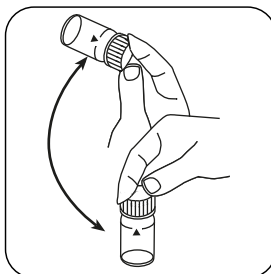
Add **3 drops Ca Mg Hardness SOL 1 (red bottle)** to the **sample vial**.



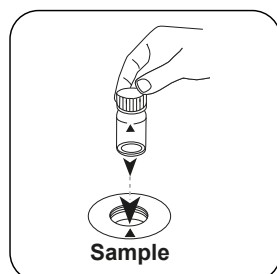
Add **4 drops Ca Mg Hardness SOL 2 (blue bottle)** to the **sample vial**.



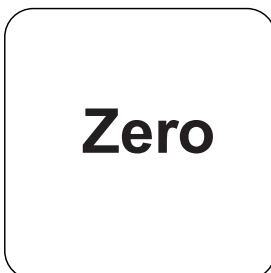
Close vial(s).



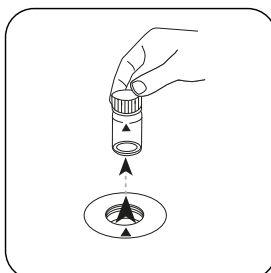
Invert several times to mix the contents (10x).



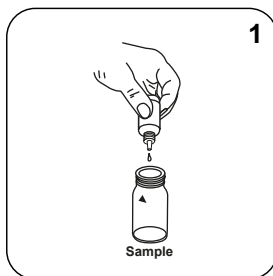
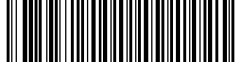
Place **sample vial** in the sample chamber. Pay attention to the positioning.



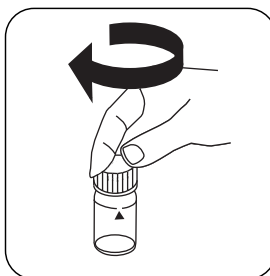
Press the **ZERO (XD: START)** button.



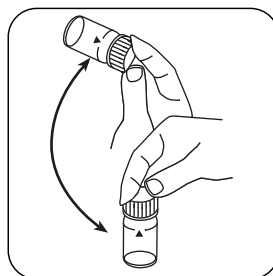
Remove the vial from the sample chamber.



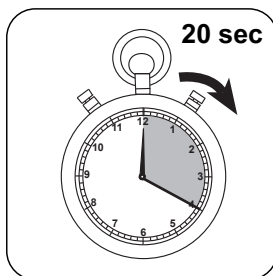
Add **1 drops Ca Mg Hardness SOL 3 (green bottle)** to the **sample vial**.



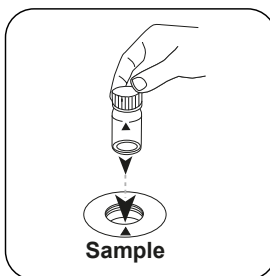
Close vial(s).



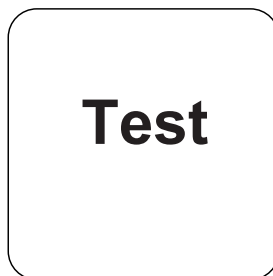
Invert several times to mix the contents.



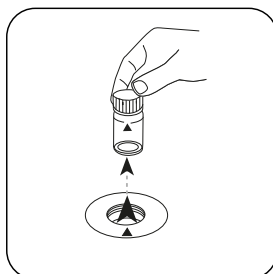
Wait for **20 second(s) reaction time**.



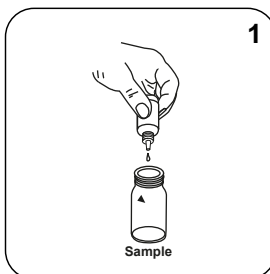
Place **sample vial** in the sample chamber. Pay attention to the positioning.



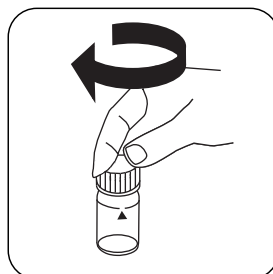
Press the **TEST** (XD: **START**) button.



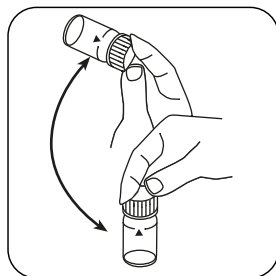
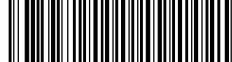
Remove the vial from the sample chamber.



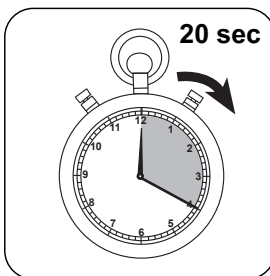
Add **1 drops Ca Mg Hardness SOL 4 (white bottle)** to the **sample vial**.



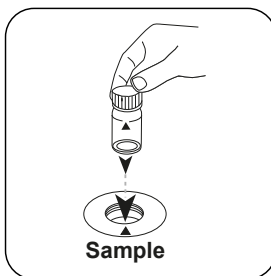
Close vial(s).



Invert several times to mix the contents.



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

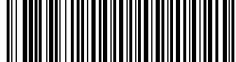


Place **sample vial** in the sample chamber. Pay attention to the positioning.

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