

## Hardness Ca and Mg L

M199

0.05 - 4 mg/L CaCO<sub>3</sub>

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	$\lambda$	Measuring Range
MD 600, MD 610, MD 640, XD 7000, XD 7500	ø 24 mm	530 nm	0.05 - 4 mg/L CaCO <sub>3</sub>

### 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

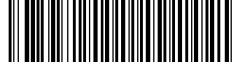
Cleaning the vials:

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.



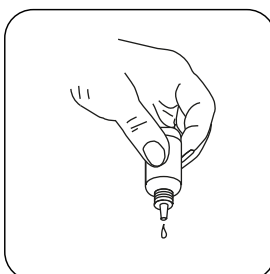


## Determination of Hardness Calcium and Magnesium with liquid reagents

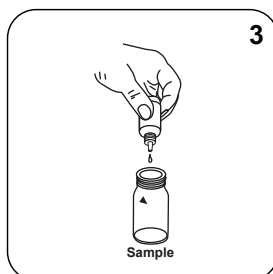
Select the method on the device.



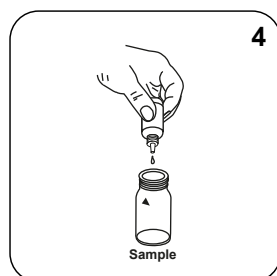
Fill 24 mm vial with **10 mL** **sample**.



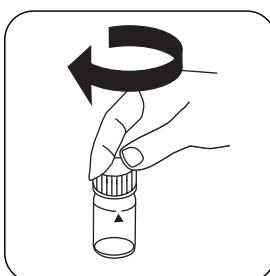
Hold cuvettes vertically and add equal drops by pressing slowly.



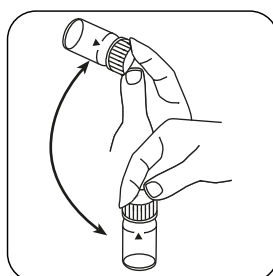
Add **3 drops** **Ca Mg Hardness SOL 1** (red bottle) to the **sample vial**.



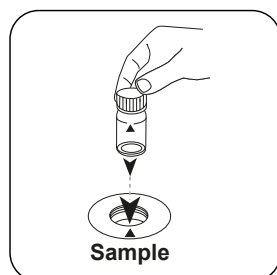
Add **4 drops** **Ca Mg Hardness SOL 2** (blue bottle) to the **sample vial**.



Close vial(s).



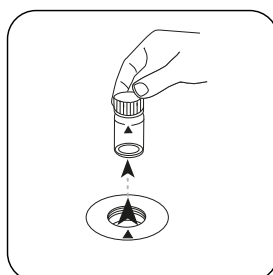
Invert several times to mix the contents (10x).



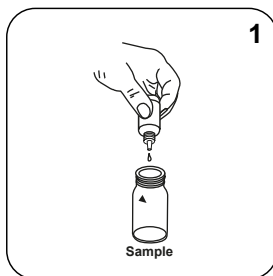
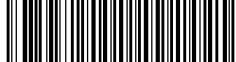
Place **sample vial** in the sample chamber. Pay attention to the positioning.



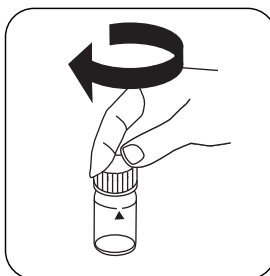
Press the **ZERO** (XD: **START**) button.



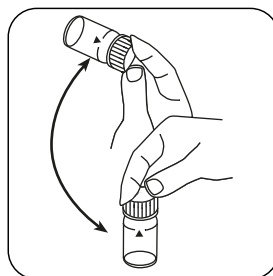
Remove the vial from the sample chamber.



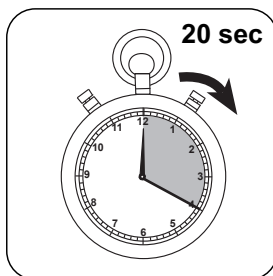
Add **1 drops Ca Mg Hardness SOL 3 (green bottle)** to the **sample vial**.



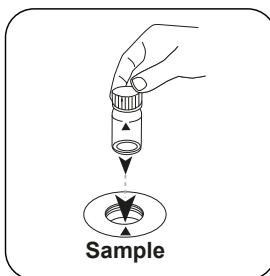
Close vial(s).



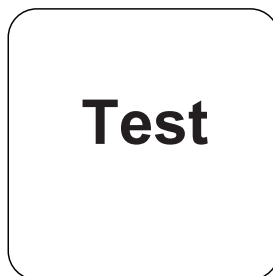
Invert several times to mix the contents.



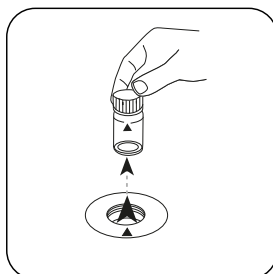
Wait for **20 second(s) reaction time**.



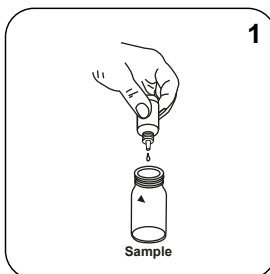
Place **sample vial** in the sample chamber. Pay attention to the positioning.



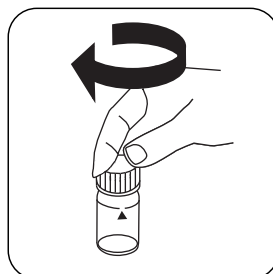
Press the **TEST** (XD: **START**) button.



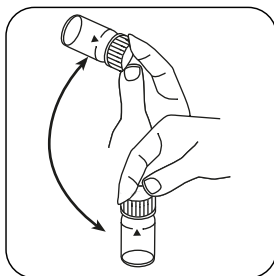
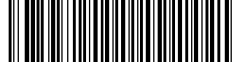
Remove the vial from the sample chamber.



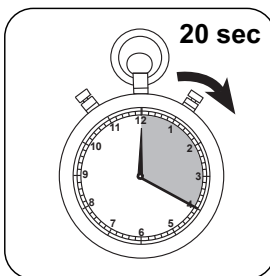
Add **1 drops Ca Mg Hardness SOL 4 (white bottle)** to the **sample vial**.



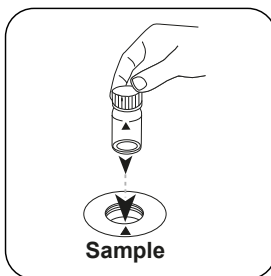
Close vial(s).



Invert several times to mix the contents.



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

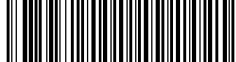


Place **sample vial** in the sample chamber. Pay attention to the positioning.

## Test

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

The result in **mg/L** [Ca]-CaCO<sub>3</sub> and [Mg]-CaCO<sub>3</sub> 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 <sub>3</sub>	1
mg/L	Ca	0.4004
mg/L	MgCO <sub>3</sub>	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 <sup>3+</sup>	0.25
Cu <sup>2+</sup>	0.75
Fe <sup>2+</sup>	1.4
Fe <sup>3+</sup>	2.0
Mn <sup>2+</sup>	0.20
Zn <sup>2+</sup>	0.050