

Method Z461 – Calcium Ca marine water

exat:ir

Specification

Description:	Test for determining the content of calcium in marine water
Range:	200-600 mg/l
Resolution:	8 mg/l
Wavelength:	610 nm
Extra feature:	exat:ir method guided by the innovative photometric system for easy and convenient titration, see 1.5 Titration method .

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Reagent set

Product Code	Description	List of components
8461	Set of reagents for method Z461, Calcium Ca marine water (reagents for approx. 20 tests)	<ul style="list-style-type: none">✓ Reagent Ca-Mg-4✓ Reagent Ca-Mg-6✓ powder Reagent Ca-Mg-5✓ spatula✓ 1 ml syringe with tip✓ vial

Performing the measurement

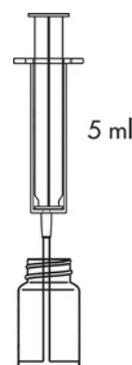
1. Select the **Z461 Calcium Ca marine water** method (**Methods** → **Select method** → **Z461 Calcium Ca marine**). How to select the method, see [8.1 Choosing method](#).

NOTE:

*It is recommended to use the **GUIDE** system by pressing the context button **GUIDE** on the photometer. It will provide you with step-by step basic instruction how to perform measurement and a timer with beeper to count down reaction time. To enable this function press the button **GUIDE**.*

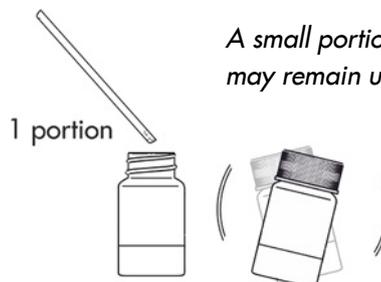
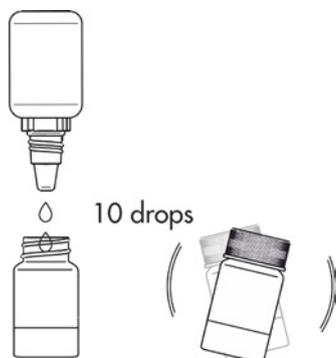
2. Rinse the vial and the syringe three times with the tested water.

Take exactly 5 ml of the tested water with the syringe and pour into the vial.

**NOTE:**

Make sure no air bubbles are present in the syringe. Trapped air bubbles can affect accuracy of the measurement.

3. Add 10 drops of **Reagent Ca-Mg-4** and shake to mix.
4. Add 1 portion of **Reagent Ca-Mg-5** with the spatula, shake until the powder has dissolved.



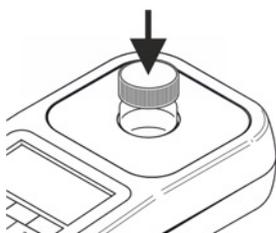
NOTE!

Make sure that the spatula is completely filled.

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A small portion of sediment may remain undissolved.

5. Insert the vial into the round vial holder and press the **ZERO** key. The display will show **"-0.0-"**, which means the device is ready for measurement.



26 08 20		12:35	
Ca	Z461 Calcium Ca Ma		
	tag 1		
Measuring ...			
ZERO	MEAS	GUIDE	

26 08 20		12:35	
Ca	Z461 Calcium Ca Ma		
	tag 1		
-0.0- mg/l			
ZERO	MEAS	GUIDE	

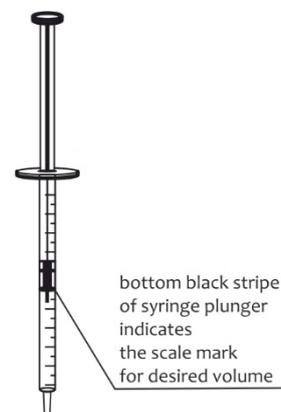
NOTE:

Before starting the measurement, it is highly recommended to make sure the test vial is clean and dry. Liquid residues remaining on the vial walls may adversely affect reliability of results.

6. Replace the cap with a hole on the vial. Attach the tip on the end of the 1 ml syringe and take 1 ml of the **Reagent Ca-Mg-6**. The bottom black stripe of the syringe plunger should be on the scale mark for the desired volume, see [18.3.1 Proper use of syringe](#).

NOTE:

Make sure no air bubbles are present in the syringe or in the tip. Trapped air bubbles can affect accuracy of the measurement.



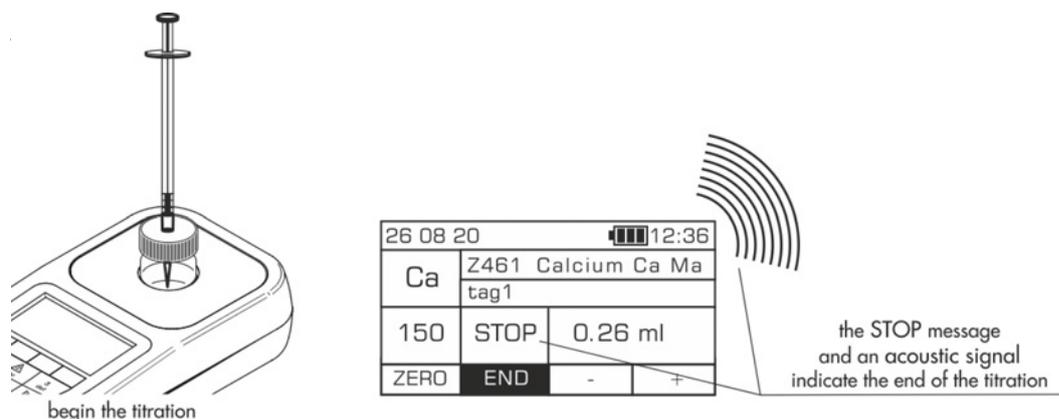
1 ml syringe

- Place the syringe with the Reagent Ca-Mg-6 in the cap hole. Press the **MEAS** key and begin the titration by carefully adding **Reagent Ca-Mg-6** in small portions. If the entire volume of the syringe is emptied and there is no end of titration, take another portion (1 ml) of Reagent Ca-Mg-6 and continue titration.

NOTE:

To obtain accurate results of titration shake carefully the instrument with the vial after each portion of Reagent Ca-Mg-6 is added to mix well.

The end of the titration is indicated by an acoustic signal and the message **STOP** appears on the instrument.



NOTE:

Remember not to switch off the beeper message before taking a measurement, see [12.7 Beeper](#). It will disable the acoustic signal which indicates the end of the titration.

- Read the volume of added **Reagent Ca-Mg-6** in ml on the syringe scale and enter the value using the „+“ button or any other key on the keyboard apart from the **Power key** and the **minus key**. Press the **END** key. The result – **the concentration of calcium** – is displayed in mg/l (ppm).

26 08 20		12:36	
Ca	Z461 Calcium Ca Ma	tag1	
150	STOP	0.26 ml	
ZERO	END	-	+

26 08 20		12:36	
Ca	Z461 Calcium Ca Ma	tag 1	
210.1 mg/l			
ZERO	MEAS	GUIDE	REC

NOTE:

For this method a few different units of measurement are available. To switch between **mg/l**, **ppm** and **B** use left/right cursors in the result section of the main screen. **B** is an **arbitrary unit** required to determine the concentration of magnesium in mg/l (ppm), see [19.19 Method Z460, point 9](#).

Potential interferences

the high content of bi- or multivalent metals
- mainly manganese (Mn) and iron (Fe)

may cause falsely high readings