

## Method Z473 – Magnesium Mg fresh water

### Specification

Description:	Test for determining the content of magnesium in fresh water
Range:	3 - 150 mg/l
Resolution:	1 mg/l
Wavelength:	610 nm
Extra feature:	<b>exat:ir</b> method guided by the innovative photometric system for easy and convenient titration, see <a href="#">1.5 Titration method</a> .

Page | 1

#### NOTE:

Firstly, take a measurement according to the method Z472, Calcium Ca fresh water (product no 8472).

For the correct determination of the magnesium content in the method Z473, it is necessary to enter the previously measured calcium content in accordance with the method Z472. Exaqua allows you to transfer the calcium content from the recently performed compatible calcium method to the currently performed magnesium method. However, it should be remembered that the recorded result is deleted from the photometer internal memory after any 4 consecutive measurements are performed. Thus, no more than 4 other measurements should be made between the calcium measurement and the corresponding magnesium measurement.

### Reagent set

Product Code	Description	List of components
8473	Set of reagents for method Z473, Magnesium Mg fresh water (reagents for approx. 40 tests)* * for the average content of Ca 65 mg/l and Mg 15 mg/l	<ul style="list-style-type: none"> <li>✓ Reagent Mg-1</li> <li>✓ Reagent Mg-2</li> <li>✓ 1 ml syringe with tip</li> <li>✓ vial</li> </ul>

### Performing the measurement

- Select the **Z473 Magnesium Mg fresh water** method (Methods → Select method → Z473 Magnesium Mg Fresh). How to select the method, see [8.1 Choosing method](#).

#### NOTE:

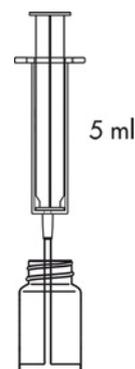
It is recommended to use the GUIDE system by pressing the context button **GUIDE** on the photometer. It will provide you with step-by-step basic instruction how to perform measurement and a timer with beeper to count down reaction time. To enable this function press the button **GUIDE**.

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

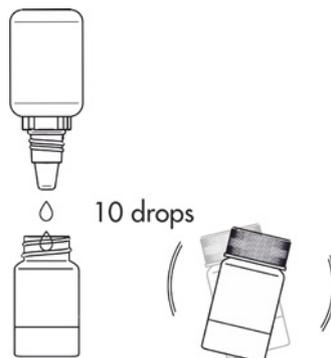
Take exactly 5 ml of the tested water with the syringe and pour into the vial.

#### NOTE:

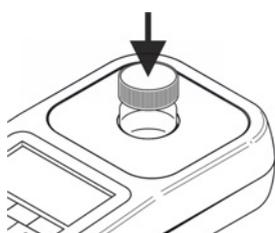
Make sure no air bubbles are present in the syringe. Trapped air bubbles can affect accuracy of the measurement.



3. Add 10 drops of **Reagent Mg-1** and shake to mix.



4. 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	
Mg	Z473 Magnesium Mg	tag 1	
<b>Measuring ...</b>			
ZERO	MEAS	GUIDE	

26 08 20		12:35	
Mg	Z473 Magnesium Mg	tag 1	
<b>-0.0- mg/l</b>			
ZERO	MEAS	GUIDE	

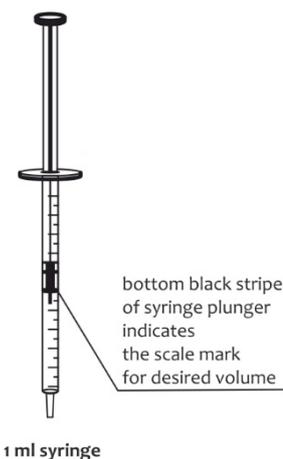
**NOTE:**

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.

5. 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 Mg-2**. 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.

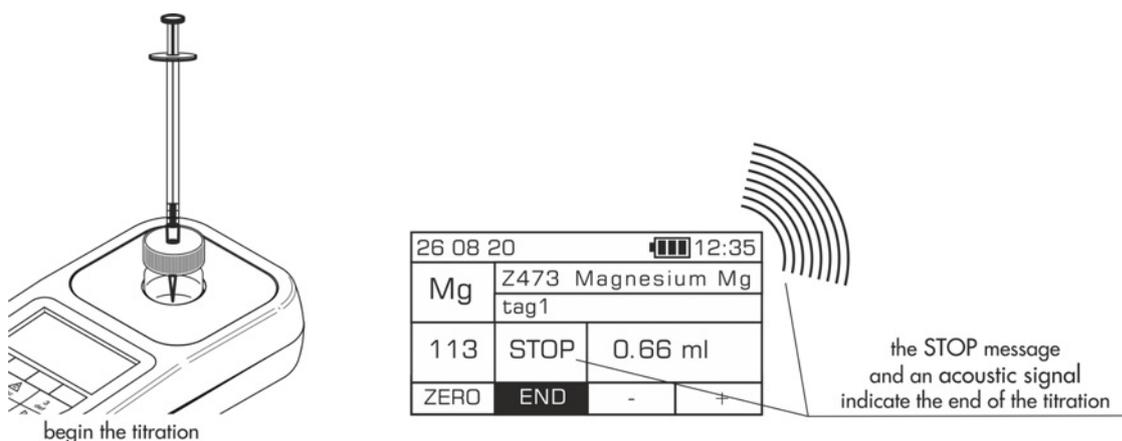


6. Place the syringe with the **Reagent Mg-2** in the hole cap. Press the **MEAS** key and begin the titration by carefully adding **Reagent Mg-2** in small portions. If the entire volume of the syringe is emptied and there is no end of titration, take another portion (1 ml) of **Reagent Mg-2** and continue titration.

**NOTE:**

To obtain accurate results of titration shake carefully the instrument with the vial after each portion of **Reagent Mg-2** 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.

7. Read the volume of added **Reagent Mg-2** 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.

8. **If the calcium content has been previously measured (according to method Z472)** its value will be displayed on the screen. You can accept it by pressing the **OK** key or enter the default value (0 mg/l) by pressing the **DEF** key.

Linked value  12:36			
Enter value			
Ca 62.2 mg/l			
Result from Z472			
DEF	LAST		OK

**If the calcium content has NOT been previously measured (according to method Z472)** the default value (0 mg/l) will be displayed on the screen. To accept it, press the **OK** key.

Linked value  12:36			
Enter value			
Ca 0.0 mg/l			
Default value			
DEF			OK

Apart from accepting default or previously measured calcium content it is also possible to enter your own result for calcium by using the keyboard keys (0-9). To accept it, press the **OK** key.

9. The result – **the concentration of magnesium ions** – is displayed in **mg/l (ppm)**.

26 08 20  10:25			
Mg	Z473 Magnesium Mg tag1		
113	STOP	0.66 ml	
ZERO	END	-	+

26 08 20  10:25			
Mg	Z473 Magnesium Mg tag 1		
28.1 mg/l			
ZERO	MEAS	GUIDE	REC

## Potential interferences

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

may cause falsely high readings