



MG

For the determination of the magnesium content in marine aquariums by complexometric titration Visual method of color change

Definition

This test is designed to determine the magnesium content in marine aquariums in the range of 1100 to 1500 mg/L Mg.

Organisms like hard corals, sea urchins, crayfish and seashells form calcareous skeletons and calcareous shells respectively. To ensure a balanced growth and optimal living conditions they require sufficient amounts of calcium as well as magnesium. Furthermore magnesium serves as calcification inhibitor which prevents the precipitation of calcium as lime.

Method

The determination of the magnesium content is carried out by complexometric titration.

Magnesium ions form a red colored complex with the used indicator. Titration with Na₂-EDTA (Titrplex III) releases the indicator while the magnesium ions are complexed by EDTA. The free indicator has a blue color. A change of color from red to pure blue indicates the endpoint of the titration.

Reagents

The reagents are ready for use and have a shelf life until the printed expiry date. Store reagents at +15...25 °C and protected from direct light at the dark.

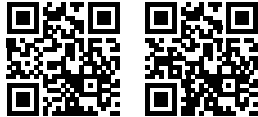
Number of Determinations

The content is sufficient for approximately 30 analyses.

Resolution/measuring accuracy: 1 drop corresponds to 75 mg/L magnesium ions.

Risks and Safety

Please observe the necessary precautions for use of laboratory reagents. Applications should be performed by expert personnel only. Follow the national and laboratory internal guidelines for work safety. Wear suitable protective clothing and disposable gloves while handling.



www.sds-id.com

For additional safety information please refer to the information on the label and the corresponding Safety Data Sheet (SDS).

Download by QR-Code or link:

- www.sds-id.com/100181-4 (MG1 - Buffer Solution)
- www.sds-id.com/100182-3 (MG2 - Indicator Powder),
- www.sds-id.com/100157-4 (MG3 - Titration Solution)
- www.sds-id.com/100181-4,100182-3,100157-4

Content

073050-6001	KIT	MG Magnesium; consisting of:
073051-0030	MG1	1x 25mL Reagent MG1
073052-0030	MG2	1x 2.0g Reagent MG2
073053-0030	MG3	1x 30mL Reagent MG3
		1x Syringe 5mL
		1x Testing vial
		1x Measuring spoon for MG2

Reference Range

The optimal magnesium content of marine aquariums varies from 1200 to 1400 mg/L Mg.

Application

Preparation

Use fresh aquarium water for analysis. *1)

Rinse the testing vial several times with the sample water to be tested.

Procedure

Hold the dropper bottle vertically while adding drops. Close reagent bottle immediately after use.

- Use the enclosed syringe to fill the testing vial with exactly 5 mL of the aquarium water. *2)
- Add 15 drops of reagent **MG1** and mix by shaking briefly.
- Add 1 spoonful of reagent **MG2** and mix well for at least 30 seconds until the powder is completely dissolved. The color changes to red.
- Add reagent **MG3** dropwise.
For high precision be sure, that the dropper tip is dry - or clean dropper tip with a paper cloth.
Mix the solution sufficiently after each drop by rotating movement.
Count the number of drops needed until the solution changes to pure blue. Note the number of drops needed.
Be sure there are no (additional) drops outside the dropper between the titration - clean dropper with a paper cloth.

Procedure chart:

Sample:	5 mL
Reagent MG1:	15 drops
Reagent MG2:	1 spoonful (flat)
Reagent MG3:	X. drops

Mix for at least 30 seconds until the powder is completely dissolved.

X. = count drops.

Mix well after each drop.

Color change from red via purple to pure blue.

To make sure the color change does not occur delayed at end of the titration wait shortly after each drop added.

Place the testing vial in front of a white background or on a white piece of paper in order to see the color change more clearly.

To assure that the actual endpoint of the titration is reached add an additional drop to the sample. If the color does not change for 30 seconds the titration is finished (the additional drop is not counted).

Analysis

Multiply the number of required drops until the color change with the followed factor. The result indicates the magnesium content.

$$\text{Number of drops} \times 75 = \text{mg/L Magnesium}$$

$$\text{Number of Drops} \times 3.086 = \text{mmol/L Magnesium}$$

Conversion

$$\text{mg/L Magnesium} \times 0.041 = \text{mmol/L Magnesium}$$

$$\text{mmol/L Magnesium} \times 24.30 = \text{mg/L Magnesium}$$



Notes

This product information exclusively relates to the product described in this leaflet. In particular, this product information cannot be applied to similar reagents from other manufacturers.

Instructions for Use

Close reagent bottle immediately after use, avoid touching the dropper.

Rinse testing vial and syringe with distilled water.

Solutions containing dyes are subject to a limited shelf life. If the test results deviate strongly from the expected results the test should be reviewed with a reference solution.

Support / Information service

For methodological and technical support, please contact us by E-Mail at support@bioanalytic.de (German, English).

Periodically check for updates of this product information on our website.

Feedback

Information from users can be reported to support@bioanalytic.de (German, English).

Suggestions for further developments will be considered.

Waste Management

Please observe your national laws and regulations.

Used and expired solutions must be disposed of in accordance with your local regulations.

Inside the EU, national regulations apply that are based on the current, amended version of Council Directive 67/548/EEG on the approximation of the laws, regulations and administrative provisions relating to the classification, packaging and labelling of dangerous substances.

Decontaminated packaging can be disposed of as household waste or recycled, unless otherwise specified.

Literature & Footnotes

Legends for the graphic symbols and tags used follow relevant norms or are available on our internet pages.

- *1) Rinse testing vial solely with distilled water after use. Rinse with tap water can lead to higher test results in following determinations due to containing ions. Store testing vial dry and dust free.
- *2) The precision of the volume is substantial for the accuracy of the measuring result. The expire date printed on the blister package of the syringe refers to the sterility and has no relevance to the measuring result.