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CA

For the determination of the calcium content in marine aquariums by complexometric titration

Visuell method of color change

Definition

This test is designed to determine the calcium content in marine aquariums in the range of 300 to 500 mg/L Ca.

Invertebrates, calcareous algae and corals require a sufficient amount of calcium in the water for a balanced growth and optimal living conditions. By the uptake of carbon dioxide into the water calcium hydrogen carbonate is formed which can be absorbed directly by calcareous skeleton organisms.

Through continuous metabolic activites and precipitation of marine organism periodic monitoring and dosing of calcium ions is essential.

Method

The determination of the calcium content is carried out by complexometric titration in a strongly alkaline pH range (pH ≥ 12). Calcium ions form a red colored complex with the used indicator.

The indicator is released by titration with Na_2-EDTA (Titriplex III) while the calcium ions are complexed by EDTA. The free indicator turns the solution into blue. A change of color from red via purple (shortly before color change) 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 sufficent for approximately 30 analyses.

Resolution/measuring accuracy: 1 drop corresponds to 20 mg/L Ca.

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.

SDS ID International
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/100158-3,100159-2,100160-9

Content

073020-6001	KIT	CA Calcium; consisting of:	
073021-0030	CA1	1× 30 mL	Reagent CA1
073022-0002	CA2	1× 2.0 g	Reagent CA2
073023-0030	CA3	1× 30 mL	Reagent CA3
		1×	Syringe 5 mL
		1×	Testing vial
		1×	Measuring spoon for CA2

Reference Range

The optimal level of calcium of marine aquariums varies from 400 to 450 mg/L Ca.

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 **10** drops of reagent **CA1** and mix well by gentle shaking. Possible turbidity of the solution does not impact further measurements.
- Add **1** spoonful of reagent **CA2** and mix well by shaking briefly. The solution changes to red. *3)
- Add reagent **CA3** dropwise. Mix the solution sufficiently after each drop by rotating movement. Count the number of drops needed until the solution changes to pure blue.

Procedure chart:

Sample:	**5 ml**
Reagent CA1:	**10 drops**
Reagent CA2:	**1 spoonful (flat)**
Reagent CA3:	**X. drops**

Mix well after each drop and count drops. Color change from red via purple to 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 blue 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 by 20. The result indicates the calcium content in mg/L.

Number of drops × 20 = mg/L Calcium

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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 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.

*3) If the solution changes directly to blue, no or very little calcium is contained.