

WES TEST



INSTRUCTIONS FOR USE

FAUNA MARIN
AQUAHOMETEST Ca /Mg

Calcium + Magnesium | Combi-Test | Saltwater Aquaria





FAUNA MARIN AQUAHOMETEST Ca/Mg



Contents of package:

- 35 ml/1.38 fl.oz. of reagent A
- 9 g/0.32 oz. of reagent B
- 50 ml/1.69 fl.oz. of reagent C
- 40 ml/1.35 fl.oz. of reagent D
- 2 glass cuvettes 10 ml
- 1 dosing syringe 5 ml
- 3 dosing syringes 1 ml with dropper tips
- 1 measuring spoon
- 1 instruction for use



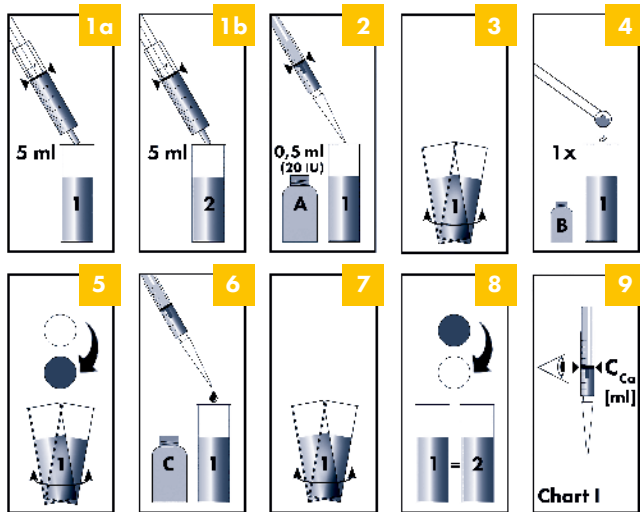
FAUNA MARIN

AQUAHOMETEST Ca/Mg

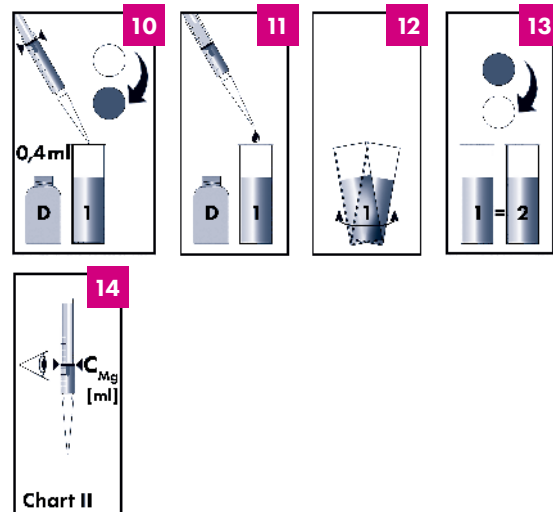
Quick start guide:

Ca + Mg | Kombi-TEST | MEERWASSERAQUARIEN | SALTWATER AQUARIUMS
 KURZANLEITUNG | QUICK START GUIDE

Ca -TEST



Mg -TEST





FAUNA MARIN AQUAHOMETEST Ca/Mg

Table I: Calcium concentrations

V_c [ml] *	C_{Ca} [mg/l] **	V_c [ml] *	C_{Ca} [mg/l] **	V_c [ml] *	C_{Ca} [mg/l] **
0,98	496	0,64	428	0,30	360
0,96	492	0,62	424	0,28	356
0,94	488	0,60	420	0,26	352
0,92	484	0,58	416	0,24	348
0,90	480	0,56	412	0,22	344
0,88	476	0,54	408	0,20	340
0,86	472	0,52	404	0,18	336
0,84	468	0,50	400	0,16	332
0,82	464	0,48	396	0,14	328
0,80	460	0,46	392	0,12	324
0,78	456	0,44	388	0,10	320
0,76	452	0,42	384	0,08	316
0,74	448	0,40	380	0,06	312
0,72	444	0,38	376	0,04	308
0,70	440	0,36	372	0,02	304
0,68	436	0,34	368	0,00	300
0,66	432	0,32	364		

*

Reagent left in syringe V_c [ml]

**

Calcium Concentrations C_{Ca} in mg/l (0,26 US gal.)/ppm



FAUNA MARIN AQUAHOMETEST Ca/Mg

Table II: Magnesium concentrations

V_D [ml] *	C_{Mg} [mg/l] **	V_D [ml] *	C_{Mg} [mg/l] **	V_D [ml] *	C_{Mg} [mg/l] **
0,59	820	0,42	1160	0,25	1500
0,58	840	0,41	1180	0,24	1520
0,57	860	0,40	1200	0,23	1540
0,56	880	0,39	1220	0,22	1560
0,55	900	0,38	1240	0,21	1580
0,54	920	0,37	1260	0,20	1600
0,53	940	0,36	1280	0,19	1620
0,52	960	0,35	1300	0,18	1640
0,51	980	0,34	1320	0,17	1660
0,50	1000	0,33	1340	0,16	1680
0,49	1020	0,32	1360	0,15	1700
0,48	1040	0,31	1380	0,14	1720
0,47	1060	0,30	1400	0,13	1740
0,46	1080	0,29	1420	0,12	1760
0,45	1100	0,28	1440	0,11	1780
0,44	1120	0,27	1460	0,10	1800
0,43	1140	0,26	1480		

*

Reagent left in syringe V_D [ml]

**

Magnesium Concentrations C_{MG} in mg/l (0,26 US gal.)/ppm



FAUNA MARIN **AQUAHOMETEST Ca/Mg**

Precision for saltwater aquaria

Measurement range:

Ca 300 – 498 mg/l (0,26US gal.)/ppm

Mg 820 – 1800 mg/l (0,26US gal.)/ppm

About calcium and magnesium:

Along with sodium, potassium, chloride and sulphate, calcium (Ca^{2+}) and magnesium (Mg^{2+}) are two key components of natural seawater. Magnesium and, above all, calcium are important growth factors for organisms which form calcareous skeletons, such as hard coral and coralline algae - both elements form the basic substance of the calcareous skeleton. Furthermore, magnesium and calcium are involved in numerous biochemical processes. In saltwater applications, the reduction in the magnesium or calcium concentration caused partly by cellular metabolism and partly by skeleton formation means it is necessary to test the concentration levels on a regular basis and, if required, add more of one or both ions. This makes it possible to guarantee optimum, near-natural living conditions for all organisms and to prevent long-term damage.

In natural seawater, the calcium concentration is
400 – 410 mg/l (0,26 US gal.)/ppm
and the magnesium concentration is
1280 – 1320 mg/l (0,26 US gal.)/ppm.

They also have a fixed ratio of 1 : 3.25 to one another. Due to the chemical and biochemical interdependencies between calcium and magnesium, you should also aim to achieve this concentration ratio in saltwater tanks.



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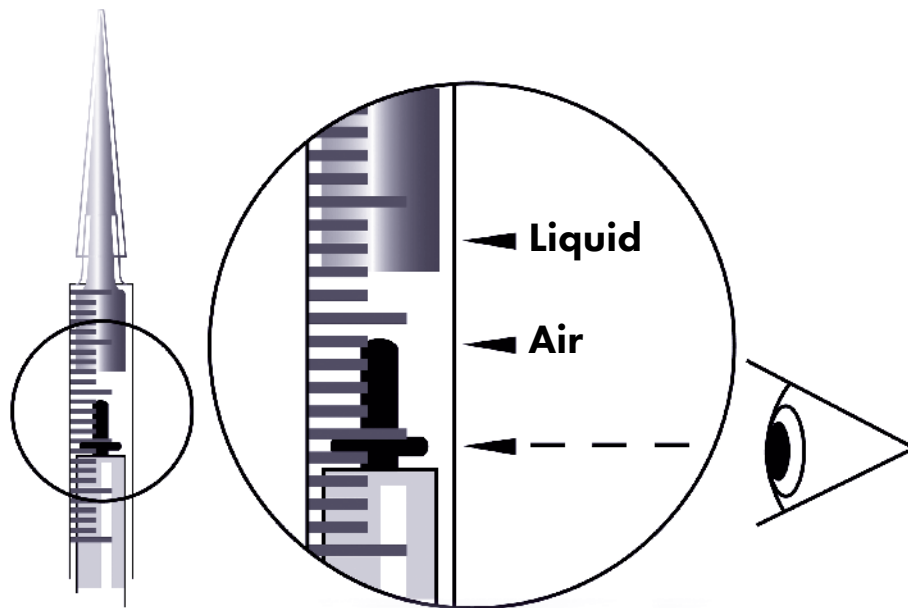
Instructions for use:

Note:

The calcium concentration is determined first, and then the magnesium concentration is determined **using the same sample**.

To avoid cross-contamination, the dosing syringes with the proper tips must only be used again for the same reagents!

Dip the syringe into the liquid before drawing up the syringe. Readings on dosing syringes are always taken at the plunger even if there is air between the plunger and the liquid (caused by the empty volume of the dropper tip, see illustration). The air bubble will not affect the test result.





FAUNA MARIN AQUAHOMETEST Ca/Mg

Determining the calcium level:

1. Shake the bottles before use!
2. Rinse out both glass cuvettes with tap water and then several times with aquarium water.
3. Fill each glass cuvette with exactly **5 ml of aquarium water** using the dosing syringe. Put one of the two water samples aside as a reference.
4. Place a clean dropper tip onto the 1 ml dosing syringe with **red lettering** and draw out **reagent A** up to the **20 marking** on the syringe (corresponds to 0.5 ml). Empty the entire amount into the cuvette with the analysis sample.
5. Close the glass cuvette using the stopper and briefly swirl the solution.
6. Then mix **reagent B (powder)** with the measuring spoon and add **1 level measuring spoon of reagent B** to the glass cuvette containing the analysis sample. Swirl the cuvette carefully until the powder has dissolved. The water sample will turn **light-blue**.
7. Place another clean dropper tip onto the 1 ml dosing syringe **with black lettering** and draw out **1 ml of reagent C**.



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Determining the calcium level:

8. Now add **reagent C** from the syringe to the analysis sample **drop by drop** until the light-blue solution becomes **colourless***.
Swirl the cuvette after each new drop. To assist in detecting the colour change, take the comparison sample (the second cuvette you prepared at point 3) on a white surface and look into both cuvettes from above when they are sitting side by side. You can stop adding drops when the colour change is complete and there is no difference between the analysis sample and the comparison sample.
9. The residual volume of **reagent C** in the syringe shows the calcium concentration C_{Ca} in mg/l (0,26 US gal.)/ppm that can be determined using **table I**.
Example: If the lower side of the syringe plunger is at 0.46 ml following titration, then the residual volume of reagent C is 0.46 ml. The calcium concentration in the sample is: $Ca = 392 \text{ mg/l (0,26 US gal.)}$.
10. The residual volume of reagent C in the syringe can be put back into bottle C.



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Determining the calcium level:

***Note:** If the solution becomes colourless after adding only two drops of reagent C, we recommend repeating the determination process with a lower sample volume of 4 ml instead of 5 ml. Carry out the test in accordance with the specifications, however, at point 3, use a sample of 4 ml per cuvette. You must multiply the calcium concentration value obtained from the table at the end of the determination process by the factor 1.25 to establish the true calcium concentration in your sample.

EXAMPLE:

Sample volume in ml:

4 ml instead of 5 ml

Calcium concentration reading:

440 mg/l (0,26 US gal.)/ppm

Actual calcium concentration:

$C_{Ca} = [1.25 \times 440 \text{ mg/l (0,26 US gal.)}] = 550 \text{ mg/l (0,26 US gal.)/ppm}$



FAUNA MARIN **AQUAHOMETEST Ca/Mg**

Determining the magnesium level (must follow the calcium test with the same sample):

11. Place the third clean dropper tip onto the 1 ml dosing syringe **with the green plunger** and draw out **1 ml of reagent D**.
12. Add approx. 0.4 ml of **reagent D** to the water sample.
The water sample will turn **light-blue** again.
13. Now add the remaining **reagent D** from the syringe to the water sample **drop by drop** until the light-blue solution becomes **colourless**^{**}.
Swirl the cuvette after each new drop. To assist in detecting the colour change, take the comparison sample (the second cuvette you prepared at point 3) on a white surface again and look into both cuvettes from above when they are sitting side by side.



FAUNA MARIN AQUAHOMETEST Ca/Mg

Determining the magnesium level:

14. The residual volume of **reagent D** in the syringe shows the magnesium concentration C_{Mg} in mg/l (0,26 US gal.)/ppm that can be determined using **table II**.

Example: If the lower side of the syringe plunger is at 0.35 ml following titration, then the residual volume of reagent C is 0.35 ml.

The magnesium concentration in the sample is:

$Mg = 1300 \text{ mg/l (0,26 US gal.)/ppm}$

If you have a 4 ml sample, multiply the table value by 1.25 to establish the correct magnesium concentration.

15. The residual volume of reagent D in the syringe can be put back into bottle D. Rinse out the glass cuvettes, dosing syringes and dropper tips thoroughly with tap water and allow to dry before using them again.

**** Note:**

If the colour change from light-blue to colourless is difficult to detect, we recommend to carry out the measurement under a bright light source which is similar to daylight.



FAUNA MARIN AQUAHOMETEST Ca/Mg

How to correct unfavourable values:

To increase the concentration of calcium, we recommend using Fauna Marin **CALCIUM MIX/MAGNESIUM MIX** or **ELEMENTALS Ca/ELEMENTAL Mg**.

If calcium or magnesium concentrations are overly high, a **partial water change** should be carried out.





FAUNA MARIN **AQUAHOMETEST Ca/Mg**

Safety instructions:

Solution A:

Causes skin irritation.

Causes serious eye irritation.

Solution D:

contains Ammonia 1- 5 %, sodium hydroxide.

Causes severe skin burns and eye damage.

IF IN EYES: Rinse cautiously with water for several minutes.

IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing.

Rinse skin with water/shower.

Solution C contains:

Lead nitrate. May damage fertility or the unborn child.

May cause damage to organs through prolonged or repeated exposure.

IF EXPOSED OR CONCERNED: Get medical advice/attention.

Keep out of reach of children.



DANGER



FAUNA MARIN AQUAHOMETEST Ca/Mg

TIP:

In order to protect the environment, the reagents for the **AQUAHOMETEST** Calcium / Magnesium (Combitest) are also available in affordable refill packs!





FAUNA MARIN AQUAHOMETEST Ca/Mg

Shelf life and storage:

6 months after opening.

Store in a cool, dark place.

Informationen and support:

For further information or individual advice please write to us directly in our support forum: **<https://forum.faunamarin.de>**

Further instructions, information about animals and our products can be found on our website **www.faunamarin.de** in the download center: **www.faunamarin.de/support-downloads/**

In our knowledge database you will find further information about the understanding of laboratory analyses: **<https://www.faunamarin.de/wissensdatenbank/>**

Good success!

FAUNA MARIN GmbH