



**MARINE
CARE**

HARDNESS TESTKIT

Hardness in water

MARINE CARE BV
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HEALTH & SAFETY

Some reagents required for tests shown in this booklet are classed as harmful and as such, a minimum protection of gloves (rubber or plastic) and safety goggles/spectacles **MUST BE WORN**.

In addition please note and observe the Risk and Safety phrases on each reagent container and follow handling guidelines as instructed.

GENERAL NOTES

- ⇒ Avoid contact with skin or eyes
- ⇒ In case of contact with skin or eyes rinse immediately with plenty of running tap water, and seek medical attention
- ⇒ Seek attention if irritation persists
- ⇒ In case of ingestion, wash the mouth out thoroughly with water, try to vomit and seek medical attention



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HARDNESS TEST

1. Take 2 x 3 ml of cold (cooling) water sample (6 ml) with the 3 ml syringe into the bottle.
2. Add 1 spoon of Hardness reagent.
3. Swirl to mix.



4. Use the Titrant solution dropper and swirl after each drop.
5. Count each drop and add droplets until the solution changes from pink to blue.
6. Use the table to calculate the hardness based on number of drops.





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CALCULATION TABLE

Droplets count	Calcium Cabonate (mg/l CaCO_3)	Hardness °DH	Grain per Gallon
1	17,1	0,96	1
2	34,2	1,92	2
3	51,6	2,88	3
4	68,4	3,84	4
5	85,5	4,80	5
6	102,6	5,76	6
7	119,7	6,72	7
8	136,8	7,68	8
9	153,9	8,64	9
10	170,1	9,60	10

Hardness (°DH): drops X 0,96

Hardness (mg/l CaCO_3): drops X 17,1

EQUIPMENT AND REAGENTS

Titrant	1
Hardness Reagent	1
Spoon	1
Bottle	1
Syringe 0-3 ml	1

Method : Titration

Minimum : 17 mg/l CaCO_3

Number of tests : 100



WHEN IN DOUBT

- ⇒ Read the engines manual regarding the coolingwater systems treatment
- ⇒ Contact us for advise
- ⇒ E-mail us all test figures over a period of at least 3 months
- ⇒ Send us a coolingwater and make-up water sample
 - ⇒ Take a sample in a clean bottle at least 0,5 liter per sample
 - Fill the bottle(s) to the top

Doc 171022_V0



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