



MARINE CARE



HARDNESS TESTKIT



Total Hardness

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HEALTH & SAFETY

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

DROP TEST METHOD

The test should take between 10 and 30 drops of titrant to reach the end point. If number of drops is outside this range, adjust the sample volume used. i.e. < 10 drops used, increase sample volume or > 30 drops, reduce sample volume.

Rinse titration vessels with the sample to be tested or de-ionised or distilled water.



1

Hold dropper bottles vertically upside down and not inclined at an angle.



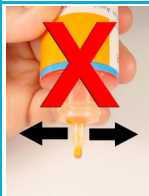
2

Allow drops to form slowly and fall off under their own weight.



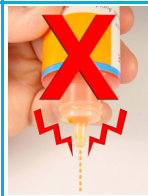
3

Keep dropper nozzles clean by wiping with a soft cloth or tissue. Especially remove encrustation caused by reagents drying out on the bottle tip.



4

Do not shake drops off.



5

Ensure droppers are not statically charged. An indication of this is a rapid stream of very small drops with no proper control of drop formation.



6

Apply gentle pressure to the bottle walls to encourage drop formation if necessary.



7

Re-place the dropper cap immediately after use to prevent cross contamination.



8

Never adjust the dropper tip aperture by inserting anything that may enlarge the opening or damage the restrictor. If the dropper tip becomes damaged, replace.







9

Use syringes provided to obtain accurate sample volumes. Do not rely on the graduations on the titration vessels, which are for rough guidance only.

TOTAL HARDNESS 0 - 600 mg/l (as CaCO₃)

Note: Test should be carried out immediately on fresh samples.
Clean all equipment well after testing.

Note: Test should be carried out immediately on fresh samples. Clean all equipment well after testing.				Expected range as CaCO ₃	Sample Size in ml	Factor
				Titrant TH3		
Take sample according to expected range	Add 4 drops of TH1	Add 4 drops of TH2 Colour changes to violet	Add drop by drop TH3 or TH4 Until colour changes to blue / green Count the drops	5 - 15	40 ml	0,5
				10 -30	20 ml	1
				20 - 60	10 ml*	2
				Titrant TH4		
				50 - 150	40 ml	5
				100 - 300	20 ml	10
				200 - 600	10 ml*	20
Colours may vary depending on sample and test conditions						
TOTAL HARDNESS = "X" drops of (TH3 or TH4) x Factor (mg/l as CaCO₃)				*Dilute samples of less than 20 ml to 20 ml with de-ionized or distilled water		

WHEN IN DOUBT

- ⇒ Contact us for advise
- ⇒ E-mail us all test figures over a period of at least 3 months



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