

# HARDNESS TEST AMPOULES



## DESCRIPTION

HARDNESS TEST AMPOULES (PCN 0365016) are a highly sensitive, safe, and easy-to-use method for the detection of low levels (0.5 ppm or less) of calcium and magnesium ions in water. The AMPOULES contain precisely measured reagents that are fully contained in vacuum-sealed glass which prevents contamination. Measurement errors are minimized because the precise sample size is drawn into the vacuum-sealed AMPOULE where it mixes with the premeasured reagents.

Calcium and magnesium ions are referenced together as “total hardness” and the concentration is expressed as <0.5 or >0.5 parts per million (ppm) as calcium carbonate.

## APPLICATION & USE

HARDNESS TEST AMPOULES are useful for testing boiler make-up water, where low levels of hardness are required. HARDNESS TEST AMPOULES can be used to test distilled, evaporated, or deionized water. They can also be used to detect hardness in-leakage into condensate from steam condensers.

Drew Marine offers two hardness test kits. HARDNESS TEST AMPOULES (PCN 0365016) are used to detect low levels of hardness in boiler feedwater, and TOTAL HARDNESS TITRETS (PCN 0378019) quantitate the total hardness present in samples that are expected to contain greater than 20 ppm of total hardness.

## TEST KIT CONTENTS

HARDNESS TEST AMPOULES (PCN 0365016) are supplied as 2 boxes of thirty (30) AMPOULES with instructions and a SNAPPING CUP that has an angled hole in the bottom to aid snapping.



## FEATURES

- Vacuum-sealed glass ampoules
- Premixed/premeasured reagents
- Snap and read test method

## BENEFITS

- Reagents protected from contamination
- Time saving and accurate testing
- Limited exposure to chemical reagents
- Fast measurements without user introduced error

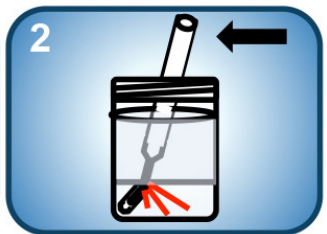


Contact your Drew Marine representative for more information

## INSTRUCTIONS FOR USE

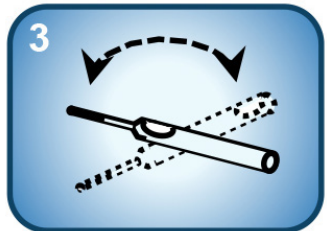


Rinse and completely fill the SNAPPING CUP with the make-up water sample (Fig. 1).

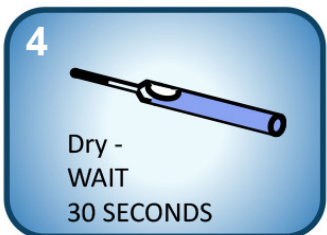


Place the tip of the HARDNESS TEST AMPOULE into the angled hole in the bottom of the SNAPPING CUP. While applying downward pressure, break the tip of the AMPOULE by tilting the AMPOULE toward the far edge of the SNAPPING CUP.

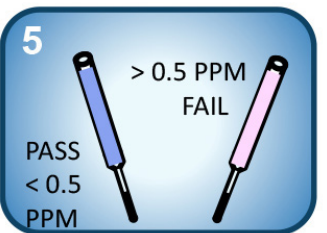
**NOTE:** Keep the tip immersed in the water while drawing the sample. Within a few seconds, the AMPOULE will fill with sample and begin to mix with reagent (Fig. 2).



Mix by inverting the HARDNESS TEST AMPOULE back and forth to dissolve the reagent (Fig. 3).



Wipe all liquid from the exterior of the AMPOULE and WAIT 30 SECONDS for full color development (Fig. 4).



Place the AMPOULE in front of a white background and view the color. A pure BLUE indicates total hardness (calcium carbonate  $\text{CaCO}_3$ ) of less than 0.5 ppm. A PURPLE/PINK color indicates that hardness is present - above the 0.5 ppm level (Fig. 5).



Contact your Drew Marine representative for more information

Drew Marine maintains Safety Data Sheets on all of its products. These documents contain health and safety information for the development of appropriate product handling procedures to protect your employees. Safety Data Sheets should be read and understood by all of your supervisory personnel and employees before using Drew Marine products.



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