

## Boiler and Cooling System



Heating systems and cooling towers require constant monitoring in order to function efficiently.

The correct equilibrium of the most important chemical parameters such as alkalinity, chloride, dissolved oxygen, hardness, phosphate and sulfite must be maintained.

This is to guarantee the maximum efficiency of the system and to prevent costly damage that can occur due to corrosion of metal parts.

HANNA instruments' combination test kit, HI 3821, includes the necessary reagents to test all these parameters. The kit allows you to perform over 100 tests of each parameter (50 for phosphate), and all the reagent bottles are numerically coded for ease of operation and to avoid mistakes.

The kit is supplied with a step-by-step and easy-to-read instruction manual so that even non technical personnel will be able to carry out the analysis.

A hard carrying case is also included for easy transportation.

Reagents can be purchased individually (please refer to section V for a list of spare reagents).

### HI 3821 - Cooling and Boiler Combination Test Kit

| Parameter  | Method       | Range*                      | Smallest Increment | Chemical Method                     | Number of Tests |
|--|--------------|-----------------------------|--------------------|-------------------------------------|-----------------|
| Alkalinity<br>(as CaCO <sub>3</sub> )            | Titration    | 0-100 mg/L<br>0-300 mg/L    | 1 mg/L<br>3 mg/L   | Phenolphthalein/<br>Bromphenol blue | approx. 110     |
| Chloride<br>(as Cl <sup>-</sup> )                | Titration    | 0-100 mg/L<br>0-1000 mg/L   | 1 mg/L<br>10 mg/L  | Mercuric Nitrate                    | approx. 110     |
| Hardness<br>(as CaCO <sub>3</sub> )              | Titration    | 0.0-30.0 mg/L<br>0-300 mg/L | 0.3 mg/L<br>3 mg/L | EDTA                                | approx. 100     |
| Phosphate (as PO <sub>4</sub> <sup>3-</sup> )    | Colorimetric | 0-5 mg/L                    | 1 mg/L             | Ascorbic acid                       | approx. 100     |
| Oxygen, Dissolved                                | Titration    | 0.0-10.0 mg/L               | 0.1 mg/L           | Modified Winkler                    | approx. 110     |
| Sulfite<br>(as Na <sub>2</sub> SO <sub>3</sub> ) | Titration    | 0.0-20.0 mg/L<br>0-200 mg/L | 0.2 mg/L<br>2 mg/L | Iodometric                          | approx. 110     |

#### Other Information

|            |   |
|------------|---|
| Dimensions | 440 x 330 x 100 mm (17.3 x 13.0 x 3.9") |
| Weight     | 2.5 kg (5.5 lb.)                        |

\* 1 mg/L = 1 ppm

For spare reagents, see section V. For accessories, see section U.