

Instruction Manual

HI 3844 Hydrogen Peroxide Test Kit



www.hannainst.com

Dear Customer,

Thank you for choosing a Hanna Product. Please read the instructions carefully before using the chemical test kit. It will provide you with the necessary information for correct use of the kit.

Remove the chemical test kit from the packing material and examine it carefully to make sure that no damage has occurred during shipping. If there is any noticeable damage, notify your Dealer or the nearest Hanna office immediately.

Each kit is supplied with:

- HI 3844A-0 Hydrogen Peroxide Reagent, 1 bottle (100 mL) ;
- HI 3844B-0 Hydrogen Peroxide Reagent, 1 bottle (17g) ;
- HI 3844C-0 Hydrogen Peroxide Reagent, 1 bottle with dropper (30 mL);
- HI 3844D-0 Hydrogen Peroxide Reagent, 1 bottle with dropper (25 mL)
- 1 plastic test tube, graduated with cap;
- 1 calibrated plastic vessel (50 mL);
- 1 plastic pipette (3 mL);
- 1 plastic pipette (1 mL), for HI 3844A-0 Reagent;
- 1 plastic spoon.

Note: Any damaged or defective item must be returned in its original packing materials.

SPECIFICATIONS	
Range	0 to 2 ppm H ₂ O ₂ Low Range 0 to 10 ppm H ₂ O ₂ High Range
Smallest Increment	0.25 ppm H ₂ O ₂ Low Range 1.0 ppm H ₂ O ₂ High Range
Analysis Method	Drop-Count Iodometric Titration
Sample Size	25 mL Low Range 5 mL High Range
Number of Tests	100 (average)
Case Dimensions	235x175x115 mm (9.2x6.9x4.5")
Shipping Weight	450 g (15.9 oz.)

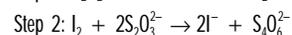
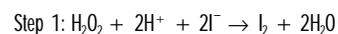
SIGNIFICANCE AND USE

Hydrogen peroxide is widely used as a disinfectant and as a bleach for textiles, wood pulp, hair, fur etc.. It is also used as a substitute for chlorine in water and sewage treatment. Most common commercial forms are aqueous solutions containing about 6, 12 and 30 per cent hydrogen peroxide and are referred to as "20-volume", "40-volume" and "100-volume" respectively, meaning the value of oxygen liberated when the solution is boiled. The Hanna test kit can quickly and easily determine concentration in water up to 10 ppm of hydrogen peroxide. This is due to the fact that it is not affected by stabilizers, which are sometimes added to commercial hydrogen peroxide solutions. The kit is portable and can be used in the field as well as in the laboratory.

Note: mg/L is equivalent to ppm (parts per million).

CHEMICAL REACTION

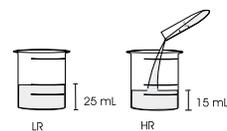
Hydrogen peroxide is determined by a titrimetric method. It reacts slowly with iodide in acid solution (Step 1); thus a 15 minutes interval is required to allow the reaction to occur completely. The amount of iodine generated is equivalent to the hydrogen peroxide in the sample. The liberated iodine is then titrated with standard sodium thiosulfate solution that reduces the iodine back to iodide ions (Step 2).



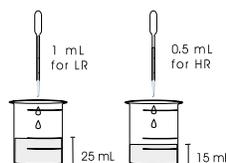
INSTRUCTIONS

READ THE ENTIRE INSTRUCTIONS BEFORE USING THE KIT

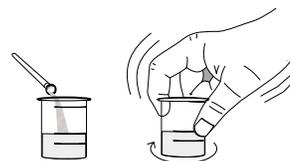
- Remove the cap from the plastic vessel and rinse it with sample. For H₂O₂ Low Range fill it up to the 25 mL mark with the sample. In case of H₂O₂ High Range fill the vessel with 5 mL of the sample using the graduated plastic test tube and add D.I. water to the 15 mL mark.



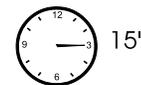
- Add 1 mL of HI 3844A-0 reagent for Low Range or 0.5 mL for High Range using the plastic pipette and swirl gently to mix.



- Using the plastic spoon provided, add 1 spoon of HI 3844B-0 reagent and swirl gently to mix.

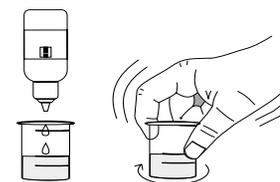


- Wait for 15 minutes to allow reaction to occur, leaving the plastic vessel closed and in a dark place.



Note: if hydrogen peroxide is present, the solution will turn to a dark yellow color.

- Slowly add drops of the titration reagent HI 3844C-0 while swirling the solution and counting the drops. Continue adding the titration solution until the yellow color of the solution is almost colorless.



- Add 2 to 3 drops of HI 3844D-0 reagent and mix by carefully swirling the plastic vessel in tight circles. The solution will turn a blue color.
- Continue adding slowly drops of the titration reagent HI 3844C-0, while swirling and counting the drops, until the solution changes from blue to colorless.
- To obtain the concentration in ppm of Hydrogen Peroxide in your sample, multiply the total number of drops of the titration reagent HI 3844C-0 used to turn the solution from the dark yellow color to colorless by 0.25 or 1 for Low Range or High Range, respectively.

$$\# \text{ of DROPS} \times 0.25 = \text{ppm Hydrogen Peroxide LR}$$

$$\# \text{ of DROPS} \times 1 = \text{ppm Hydrogen Peroxide HR}$$

Note: after a few minutes, the blue color of the starch/iodine complex may reappear after the titration has been completed due to air oxidation of the iodine.

REFERENCES

Vogel's, Textbook of quantitative chemical analysis, 5th ed., Longman Scientific and Technical

HEALTH AND SAFETY

The chemicals contained in this test kit may be hazardous if improperly handled. Read Health and Safety Data Sheets before performing the test.