

HI38444

Pool
Line

Hydrogen Peroxide Test Kit

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Dear Customer,

Thank you for choosing a Hanna Instruments product. Please read this instruction manual carefully before using the chemical test kit. For more information about Hanna Instruments and our products, visit www.hannainst.com or e-mail us at sales@hannainst.com. For technical support, contact your local Hanna Instruments Office or e-mail us at tech@hannainst.com.

Preliminary Examination

Remove the product from the packing material and examine it carefully. For any further information, please contact Hanna Instruments technical support team at tech@hannainst.com.

Each kit is supplied with:

- HI38444A-0 Hydrogen peroxide reagent, 1 bottle (100 mL)
- HI38444B-0 Hydrogen peroxide reagent, 1 bottle (17g)
- HI38444C-0 Hydrogen peroxide reagent, 1 bottle with dropper (30 mL)
- Starch indicator, 1 bottle with dropper (25 mL)
- 1 plastic test tube, graduated with cap
- 1 calibration plastic vessel (50 mL)
- 1 plastic pipette (3 mL)
- 1 plastic pipette (1 mL), for HI38444A-0 reagent
- 1 plastic spoon

Note: Save all packing material. Any damaged or defective item must be returned in its original packing material with the supplied accessories.

General Description & Intended Use

Hydrogen peroxide is used as a disinfectant in water treatment industry. 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 percent 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 HI38444 test kit can be used to quickly and easily determine hydrogen peroxide concentration in water, up to 10 ppm. 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).

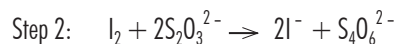
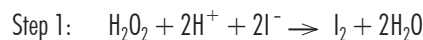
Specifications

Range	0 to 2 ppm H ₂ O ₂ Low Range (LR) 0 to 10 ppm H ₂ O ₂ High Range (HR)
Smallest increment	0.25 ppm H ₂ O ₂ LR 1.0 ppm H ₂ O ₂ HR
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")
Weight	450 g (15.9 oz.)

Chemical Reaction

Step 1: Hydrogen peroxide is determined by a titrimetric method. It reacts slowly with iodide in acid solution; 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.

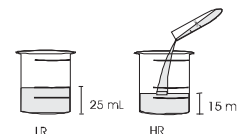
Step 2: The liberated iodine is then titrated with standard sodium thiosulfate solution that reduces the iodine back to iodide ions.



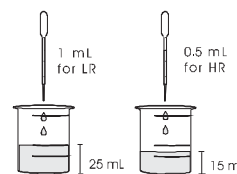
Procedure

Note: Read the entire instructions before using the kit.

1. Remove the cap from the plastic vessel and rinse it with sample.
2. For H₂O₂ LR fill the vessel up to the 25 mL mark with the sample. For H₂O₂ HR 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.



3. Add 1 mL of HI38444A-0 reagent for LR or 0.5 mL for HR, using the plastic pipette and swirl gently to mix.



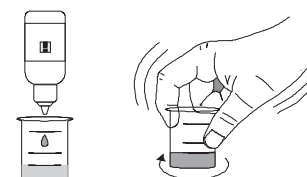
4. Use the plastic spoon and add 1 spoon of HI38444B-0 reagent and swirl gently to mix.



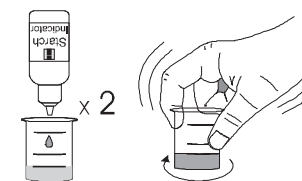
5. Wait for 15 minutes to allow reaction to occur. Keep the vessel closed, in a dark place.

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

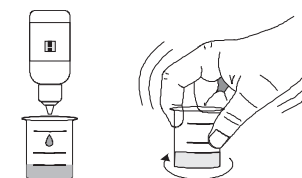
6. Remove the cap. Slowly add drops of the titration reagent HI38444C-0 while swirling the solution and counting the drops. Continue adding the titration solution until the yellow color of the solution is almost colorless.



7. Add 2 to 3 drops of starch indicator and mix by carefully swirling the plastic vessel in tight circles. The solution will turn a blue color.



8. Keep adding slowly drops of the titration reagent HI38444C-0, while swirling and counting the drops, until the solution changes from blue to colorless.



9. To obtain the concentration in ppm of Hydrogen Peroxide in the sample, multiply the total number of HI38444C-0 titration reagent drops (used to turn the solution from the dark yellow color to colorless) by 0.25 or 1 for LR or HR, 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 iodide.

Accessories

HI38444-100	Pool Line hydrogen peroxide test kit replacement reagent (100 tests)
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References

Vogel's Textbook of Quantitative Chemical Analysis, 5th ed., Longman Scientific and Technical

Health & Safety

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