

DETERMINATION of APPARENT pH IN HYDROGEN PEROXIDE

SCOPE

This method is suitable for apparent pH determination of hydrogen peroxide of strength ranging from 0.1 to 75% w/w.

PRINCIPLE

Glass and calomel electrodes* connected to a calibrated pH meter are placed in the sample. The apparent pH of the sample is read directly from the meter.

Caution: Appropriate eye and skin protection must be worn when handling hydrogen peroxide.

REAGENTS

- A. pH 2.00 Buffer
- B. pH 4.00 Buffer

These buffers are commonly available from a laboratory supply company.

- C. Nitrogen (carbon-dioxide free)

APPARATUS

A. pH Meter - accurate to 0.02 units; equipped with glass and calomel electrodes*.

B. Measuring Cell - 150 mL, borosilicate glass fitted with a four-hole lid. The holes are used for the two electrodes, a nitrogen inlet and a nitrogen outlet.

* NOTE: A combination glass-calomel electrode may be substituted for the dual electrode system.

PROCEDURE I – METER CALIBRATION

- Place 75 mL of the pH 4.00 buffer in the measuring cell.
- Immerse electrodes in the solution.
- Adjust the temperature compensation control on the pH meter to correspond to the temperature of the buffer solution.
- Agitate the buffer and let the reading stabilize. Adjust the meter calibration to correspond to the pH of the buffer solution.
- Place 75 ml of the pH 2.00 buffer in the measuring cell.
- Agitate the solution and turn on the slope adjustment until the pH indicated is 2.00.

PROCEDURE II – SAMPLE MEASUREMENT

- Place 75 mL of sample in a clean, dry measuring cell.
- Immerse the electrodes in the sample solution and agitate.
- When the reading stabilizes, record the meter reading as "apparent pH" of the sample.

SAFETY

Safe laboratory practices should be followed at all times.

Consult the Safety Data Sheet (SDS) for all chemicals before use.

Wear gloves and safety goggles when appropriate.

Persons working with hydrogen peroxide should be familiar with personal protective equipment, first aid measures and the proper safety and handling procedures. Consult the Safety Data Sheet (SDS) for appropriate information.

Prevent accidental decomposition by keeping the product free of contaminants.

Prevent fires by avoiding accidental spills. Water is the preferred method for extinguishing fires in which hydrogen peroxide is present.

Spills and leaks should be contained, diluted with copious amounts of water and disposed of in compliance with local regulations.

Hydrogen peroxide storage or handling areas should be equipped with a safety shower, an eyewash station, and a water hose.

FIRST AID

In case of product splashing into the eyes and face, treat eyes first.

Eye contact: Flush eyes immediately with water for at least 15 minutes. Call a physician.

Skin contact: Immediately flush skin with water while removing contaminated clothing and shoes. Call a physician if irritation persists.

Inhalation: Remove the victim from the contaminated area to fresh air. Call a physician in case of respiratory symptoms.

Ingestion: Consult with a physician immediately in all cases. DO NOT induce vomiting. If victim is conscious, rinse mouth and give fresh water.

DANGER

Hydrogen peroxide solutions are strong oxidizers and corrosive to the eyes, mucous membranes and skin. Consult the SDS for the appropriate Personal Protective Equipment to wear when handling hydrogen peroxide. In case of contact with the eyes, skin or clothing, flush with large amounts of water for 15 minutes. In case of ingestion, sit upright, drink large quantities of water to dilute the stomach contents and seek immediate medical attention. Product in contact with combustible materials may cause fires.



HYDROGEN PEROXIDE

Determination of Apparent pH

Technical Data Sheet

**Before using, read Safety Data Sheet (SDS) for this chemical.
Solvay Chemicals, Inc.
24-hour Emergency Phone Number – 800-424-9300 (CHEMTREC®)**

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