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Hydrogen Peroxide Concentrate

H_2O_2 34.01

Hydrogen peroxide CAS RN®: 7722-84-1; UNII: BBX060AN9V.

DEFINITION

Hydrogen Peroxide Concentrate contains NLT 29.0% and NMT 32.0%, by weight, of hydrogen peroxide (H_2O_2). It contains NMT 0.05% of a suitable preservative or preservatives.

[**Caution**—Hydrogen Peroxide Concentrate is a strong oxidant.]

IDENTIFICATION

• **A.**

Sample: 1 mL of Concentrate

Analysis: Shake the *Sample* with 10 mL of water containing 1 drop of 2 N sulfuric acid, and add 2 mL of ether. Subsequently add a drop of potassium dichromate TS.

Acceptance criteria: The addition of potassium dichromate TS produces an evanescent blue color in the water layer, which upon agitation and standing passes into the ether layer.

ASSAY

• **PROCEDURE**

Sample solution: Weigh about 1 mL of Concentrate in a 100-mL volumetric flask, and dilute with water to volume.

Titrimetric system

Mode: Direct titration

Titrant: 0.1 N potassium permanganate VS

Endpoint detection: Visual

Analysis: To 20.0 mL of the *Sample solution* add 20 mL of 2 N sulfuric acid, and titrate with *Titrant*. Each mL of 0.1 N potassium permanganate is equivalent to 1.701 mg of hydrogen peroxide (H_2O_2).

Acceptance criteria: 29.0%–32.0%, by weight

IMPURITIES

• [CHLORIDE AND SULFATE, Chloride \(221\)](#)

Sample solution: 1.5 g of Concentrate, diluted to 25 mL

Acceptance criteria: 50 ppm; the *Sample solution* shows no more chloride than 0.10 mL of 0.020 N hydrochloric acid.

• **LIMIT OF NONVOLATILE RESIDUE**

Sample: 20 mL of Concentrate, previously shaken

Analysis: Evaporate the *Sample* on a steam bath to dryness, and dry the residue at 105° for 1 h.

Acceptance criteria: NMT 30 mg of residue

SPECIFIC TESTS

• **ACIDITY**

Sample solution: 25 g of Concentrate, diluted to 250 mL

Analysis: To 25 mL of the *Sample solution* add phenolphthalein TS, and titrate with 0.10 N sodium hydroxide.

Acceptance criteria: NMT 2.5 mL is required for neutralization.

• **LIMIT OF PRESERVATIVE**

Sample: 90 mL of Concentrate, well mixed

Analysis: Extract the *Sample* in a separator with a mixture of chloroform and ether (3:2), using 50, 25, and 25 mL, respectively. Evaporate the combined extracts at room temperature in a tared glass dish to dryness, and dry over silica gel for 2 h.

Acceptance criteria: 0.05%; the residue, if any, weighs NMT 50 mg.

ADDITIONAL REQUIREMENTS

- **PACKAGING AND STORAGE:** Preserve in partially filled containers having a small vent in the closure, and store in a cool place.
- **LABELING:** Label it to indicate the name and amount of any added preservative. Label it to state that this article is not intended for direct administration to humans or animals.

Auxiliary Information - Please [check for your question in the FAQs](#) before contacting USP.

Topic/Question	Contact	Expert Committee
HYDROGEN PEROXIDE CONCENTRATE	Documentary Standards Support	SM12020 Small Molecules 1

Chromatographic Database Information: [Chromatographic Database](#)

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