

Study 3.4.

Calcium Hydroxide Topical Solution (USP 27)

Calcium hydroxide 3 g

Purified water 1000 ml

Add the Calcium Hydroxide to 1000 mL of cool Purified Water, and agitate the mixture vigorously and repeatedly during 1 hour. Allow the excess calcium hydroxide to settle. Dispense only the clear supernatant.

Questions:

1. Describe the purpose and storage conditions of Calcium Hydroxide Topical Solution.
2. Describe the reason why Calcium Hydroxide Topical Solution should be filtered when it is used.

Study 3.7.

Hydrogen Peroxide Solution, Diluted

Prepare a dilute hydrogen peroxide solution containing 3 % w/v hydrogen peroxide from the concentrated hydrogen peroxide solution.

Preparation:

Calculate the amount of hydrogen peroxide required for the desired solution. The ratio of hydrogen peroxide in the concentrated hydrogen peroxide solution in your hand (perhidrol) is proportional to the amount of hydrogen peroxide in your preparation. Make the necessary dilution with water and put in the appropriate bottle.

Questions:

1. What are the percentages of hydrogen peroxide in perhydrol and oxygenated water?
2. What does 10 volumes Hydrogen peroxide solution mean?
3. What is the purpose of using perhydrol and oxygenated water?
4. What are the factors that influence the stability of oxygenated water?
5. How is the stability of this solution provided and how should it be stored? Please explain.
6. Show the calculations required to prepare a 50 g diluted hydrogen peroxide solution of 15 vol. What is the percentage of hydrogen peroxide in this solution? ($d_{\text{hydrogen peroxide solution}} = 1\text{g/ml}$)

Study 3.8.

I- Quantity Determination of Hydrogen Peroxide in Concentrated Hydrogen Peroxide Solution

Dilute 1 ml of the solution with water to 100 ml. Take 20 ml of this and add 5 ml of dilute sulfuric acid and titrate with 0.1N potassium permanganate.

1 ml 0.1N KMnO_4 is equivalent to 0.001701 g H_2O_2

II- Quantity Determination of Hydrogen Peroxide in Diluted Hydrogen Peroxide Solution

Dilute 5 ml of the solution with water to 100 ml, the quantification is continued as in concentrated H_2O_2 solution.

III- Determination of the acidity of the solution

Dilute 10 ml of the solution to 20 ml with water and add 5 drops of methyl red onto it and titrate with 0.1N sodium hydroxide until color change. The amount of sodium hydroxide consumed should not be less than 0.2 ml and should not be too much than 1 ml.

* Titration should be done with gentle heating.

** When the titration is started, the first color change does not show the end of the reaction.