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Aim :-

To prepare and standardization of 0.1N of Boric acid (H_3BO_3).

Reference:

Requirement :-

Glasswares :- Beaker, Measuring cylinder, Burette, Conical flask, Stirring rod, Funnel.

Chemicals :- (i) Boric Acid (H_3BO_3)
(ii) NaOH (Sodium hydroxide)
(iii) Phenolphthalein indicator

Apparatus :- (i) Analytical weight machine
(ii) Burette stand
(iii) Spatula.

Theory :-

Titration is a laboratory technique that can be used to determine the concentration of certain solutions by chemical reactions. Any chemical that reacts in solution can be titrated with each other. Since

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acids and bases are usually found in solution. They are commonly involved in titration.

We are using boric acid and sodium hydroxide in this titration reaction. NaOH is a strong base and boric acid is a normal acid with pH 5.4. We are using phenolphthalein indicator in this titration to give signal of reaction completion. Phenolphthalein gives pink in baise.

$$NaOH + H_3BO_3 \longrightarrow NaBO_2 + 2H_2O$$

Procedure:

(i) Wash and dry each glassware which are to be used in this experiment.

(ii) Preparation of 1 N of Standard solution of NaOH.

(a) Weigh 4 gm of Sodium hydroxide (NaOH).

(b) Put the NaOH in 100 ml distilled water and mix it well.

(iii) Preparation of 1 N of sample solution (boric acid).

(a) Weigh 6.2 gm of H_3BO_3 (boric acid).

(b) Put it in 100ml distilled water and mix it well.

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Observation Table

S. No.	Starting point	End point	Volume consumed
1.	0.0	1.7	1.7
2.	1.7	2.8	1.1
3.	2.8	3.8	1.0

Avg. $\Rightarrow \frac{1.7 + 1.1 + 1.0}{3} = \frac{3.8}{3} = 1.26\,ml$

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(iv) Add 50 ml of standard sol^n (NaOH) in burette.

(v) Take 10 ml of sample sol^n (boric acid) in conical flask.

(vi) Add 2.3 drops of phenolphthalein indicator in conical flask.

(vii) Titrate it with standard sol^n until it gives a sharp end of reaction by changing its colour to pink.

Result:-

Preparation and standardization of 1N of boric acid performed successfully.

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