

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

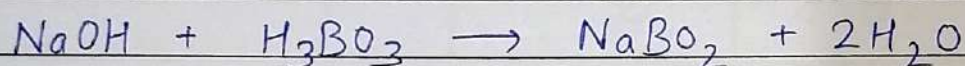
Apparatus :- (i) Analytical weight machine
(ii) Burette stand
(iii) Spatula.

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

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 base.



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 100 ml distilled water and mix it well.

Observation Table

S. No.	Starting point	End point	Volume consumed
1.	0.0	1.2	1.2
2.	1.2	2.3	1.1
3.	2.3	3.3	1.0

$$\text{Avg.} \Rightarrow \frac{1.2 + 1.1 + 1.0}{3} = \frac{3.3}{3} = 1.1 \text{ ml}$$

- (iv) Add 50 ml of standard solⁿ (NaOH) in burette.
- (v) Take 10 ml of sample solⁿ (boric acid) in conical flask.
- (vi) Add 2-3 drops of phenolphthalein indicator in conical flask.
- (vii) Titrate it with standard solⁿ 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.