

Assay of boric acid

AIM: To perform the assay of the given sample of boric acid.

APPARATUS: burette, pipette, conical flask, volumetric flask, measuring cylinder etc.

CHEMICALS: boric acid, glycerol, phenolphthalein, 1N sodium hydroxide solution, 1 N oxalic acid.

PRINCIPLE: The assay of boric acid is based upon alkalimetry method. Being a very weak acid, it cannot be directly titrated accurately with strong alkali. When it is dissolved in a mixture of water and glycerol it behaves like a strong monobasic acid and then it can be titrated with a standard solution of alkali using phenolphthalein as an indicator.

PROCEDURE:

1. For standardization of sodiumhydroxide: Into a conical flask pipette out exactly 10 ml of 0.1 N oxalic acid and add one or two drops of phenolphthalein indicator. Titrate the solution against sodium hydroxide solution until a permanent pink color is obtained. Repeat the titration to get concurrent values.
2. For assay: weigh accurately about 2 gm of boric acid and dissolve in a mixture of 50 ml of water and 100 ml of glycerol previously neutralized to phenolphthalein solution. Titrate the contents of the flask with 1 N sodium hydroxide solution using phenolphthalein as indicator. Repeat the titration for concurrent values.

I.P. FACTOR: Each ml of 1 N NaOH is equivalent to 0.016183 g of boric acid.

FORMULA:

Percent purity of boric acid = $\frac{\text{Vol. of NaOH} \times \text{I.P. Factor} \times 100}{\text{Weight of boric acid} \times \text{N of NaOH (exp)}}$ (actual)

Weight of boric acid x N of NaOH (exp)

RESULT: The percentage purity of the given sample of boric acid is

