1.Determination of Alkalinity in given water sample using standard HCl Solution

Student Name: **Marks:**

Enrolment Number:

Batch/Semester/Year:

Date:

Aim: To estimate the total alkalinity of the given sample of water using standard HCl solution.

Apparatus and Chemicals required:

Apparatus: Burette, Pipette, Standard volumetric flask, Burette stand, Beaker and Conical flask.

Chemicals: Hydrochloric acid (0.1N) and Methyl orange indicator.

Procedure:

Estimation of Alkalinity

1.Make up the given solution in a 100 mL standard volumetric flask up to the mark using distilled water and mix well to get uniform concentration (don't add excess distilled water above the mark).

2.Pipette out 25 mL of water sample from volumetric flask into a clean conical flask.

3.Add 3-4 drops of methyl orange indicator. Then entire solution in the conical flask turns to yellow.

4.The yellow colored solution is titrated against standard HCl taken in burette till the color changes from yellow to reddish orange and note down the burette reading.

5.Repeat the titrations to get the concordant values.

Table 1: Estimation of total alkalinity of the given water sample.

Burette Reading	**I**	**II**	**III**
Final reading	**17.2**	**16.4**	**16.3**
Initial reading	**0.0**	**0.0**	**0.0**
Volume of Hcl solution in ml	**17.2**	**16.4**	**16.3**

Concordant Titre value : ……

16.633……. mL

Calculation:

Volume of water sample taken = V1 mL (25 mL)

Concentration of the standard HCl solution = 0.1 N

Volume of HCl consumed = V2 mL (……16.633….. mL)

N1V1 (water sample) = N2V2 (HCl)

Concentration of alkalinity of water (N1) = V2 * 0.1 = 0.0067

V1

Water alkalinity in terms of CaCO3 equivalents (a) $= \frac{v2*0.1*50g/l}{v1}$

=……16.63*0.0667/25*50…..g/L (‘a’) =

=……0.2229……. mg/L

= ……222.88…….mg/L (or) ppm

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