Sr. No. in Scope NABL / NON NABL

**Flow chart of Acidity/Alkalinity test by pH meter**

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| --- | --- |
| **Date of Analysis** |  |

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| **Sr. No.** | **Step** | **Execution** | | **Executed By** |
| 1. | Sample No. |  | |  |
| 2. | Name of Sample |  | |  |
| 3. | **Procedure** | | | |
| **3.1** | **Sample Titration** | |  |  |
| 3.1.1 | Weigh 2.0 g of sample in 250 mL conical flask. | | g |  |
| 3.1.2 | *Note down the S.No. of balance log book* | |  |  |
| 3.1.3 | Add 25 mL of methanol and stir for 5 minutes. | |  |  |
| 3.1.4 | Filter through Buchner funnel into the filter flask. | |  |  |
| 3.1.5 | Rinse the conical flask and Buchner funnel with methyl alcohol  (3X5 mL) | |  |  |
| 3.1.6 | Transfer the combined methanol extracts to a 250 mL beaker rinsing the filteration flask with 10 mL methanol. | |  |  |
| 3.1.7 | Add 10 mL of distilled water. | |  |  |
| 3.1.8 | Calibrate the pH meter with buffer solutions (4.0, 7.0 and 9.2 pH) and  place the pH meter in the sample solution. | |  |  |
| 3.1.9 | Note down the pH of the sample. | |  |  |
| 3.1.10 | Titrate with 0.05 N NaOH or 0.05 N HCl to pH 5.0 at 27 °C and note the burette reading | | mL |  |
| **3.2** | **Blank titration** | |  |  |
| 3.2.1 | Take 50 mL of methanol and 10mL of distilled water in 250 mL beaker | |  |  |
| 3.2.2 | Note down the pH of blank | |  |  |
| 3.2.3 | Neutralise with 0.05 N NaOH (if blank is acidic)/ 0.05 N HCl (if blank is alkaline) to pH 5.0 at 27 °C . | |  |  |
| 3.2.4 | Note the burette reading | | mL |  |
| **3.3** | **Normality of Sodium hydroxide** | |  |  |
| 3.3.1 | Weigh 0.3- 0.4 g of GR grade Potassium hydrogen phthalate (KHP) in conical flask. | | g |  |
| 3.3.2 | Add 75 mL distilled water and 2-3 drops of phenolphthalein indicator and titrate with 0.05 N NaOH solution taken in burette. | |  |  |
| 3.3.3 | Note the burette reading | | mL |  |
| **3.4** | **Normality of Hydrochloric acid** | |  |  |
| 3.4.1 | Weigh 0.1 g of GR grade Sodium carbonate (Na2CO3) in 250 mL conical flask | |  |  |
| 3.4.2 | Add 25-30 mL distilled water and 2-3 drops of methyl orange indicator and titrate with 0.05 N HCl solution taken in burette. | |  |  |
| 3.4.3 | Note the burette reading | | mL |  |

**4. Calculation:**

Wt. of KHP x 1000

1. **Normality of NaOH** = -----------------------------------

Burette Reading x 204.22

204.22 = Equivalent Weight of KHP

Wt. of Na2CO3 x 1000

1. **Normality of HCl** = -----------------------------------

Burette Reading X 53

53 = Equivalent Weight of Na2CO3

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| --- | --- |
| ***IF SAMPLE IS ACIDIC***  **In case blank is Acidic**  (**iii) Acidity (as H2SO4) % by mass** =  4.9 (V – B) x N1  ----------------------  M  **In case blank is alkaline**  **Acidity (as H2SO4) % by mass** =  4.9 (VN1 + vN2)  --------------------------  M | Where,  V= Volume of NaOH consumed by the sample  B= Volume of NaOH consumed by blank.  N1= Normality of NaOH solution.  M = Mass in ‘g’ of the sample taken for test  V = Volume of NaOH required for the test sample  v = Volume of HCl required for blank titration  N1= Normality of standard NaOH solution  N2= Normality of standard HCl solution  M = Mass in ‘g’ of the sample taken for test |

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| ***IF SAMPLE IS ALKALINE***  **In case blank is Alkaline**  **(iv) Alkalinity (as NaOH) % by mass** =    4.0 (V – B) x N1  ----------------------  M  **In case blank is acidic**  **Alkalinity (as NaOH) % by mass** =  4.0 (VN1 + vN2)  ----------------------  M | | | | **Where,**  Where,  V= Volume of HCl consumed by the sample  B= Volume of HCl consumed by blank.  N1= Normality of HCl solution.  M = Mass in ‘g’ of the sample taken for test  V = Volume of HCl required for the test sample  v = Volume of NaOH required for blank titration  N1= Normality of standard HCl solution  N2= Normality of standard NaOH solution  M = Mass in ‘g’ of the sample taken for test | | |
| **Sr. No.** | **Name of test** | | **Result** | | **Unit** | **Method of Analysis** |
| 1. | **Active ingredient** | |  | | **%** | **CIBRC approved method** |
| 2. | Acidity (or) | |  | | % | **IS – 6940 : 1982** |
|  | Alkalinity | |  | | % | **IS – 6940 : 1982** |
| Remark / Reference : | | | | | | |
| Analyzed by | | Name |  | | | |
| Dated signature |  | | | |
| Checked by | | Name |  | | | |
| Dated signature |  | | | |