Sr. No. in Scope NABL / NON NABL

**Flow Chart of Alkalinity test for Emulsifiable Concentrate (EC) formulation**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Sr. No.** | **Step** | **Execution** | **Executed By** |
| 1. | Sample No. |  |  |
| 2. | Name of Sample | | |
| 2.1 | Sample Description | | |
| 3. | **Procedure** | | |
| **3.1** | **Sample Titration** |  |  |
| 3.1.1 | Weigh 10 g of sample in a 250 ml beaker. | g |  |
| 3.1.2 | *Note the serial number of balance logbook.* |  |  |
| 3.1.3 | Add 100 ml distilled water |  |  |
| 3.1.4 | Add indicator Methyl red / Bromocresol purple |  |  |
| 3.1.5 | Titrate with 0.05 N HCl and note the burette reading | mL |  |
| **3.2** | **Blank titration** |  |  |
| 3.2.1 | Take 100 ml distilled water in 250 ml conical flask |  |  |
| 3.2.2 | Add indicator Bromocresol purple / Methyl Red |  |  |
| 3.2.3 | Neutralise with 0.05 N NaOH (if blank sample is acidic)/ 0.05 N HCl (if blank sample is alkaline) |  |  |
| 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 | *Note the serial number of balance logbook.* |  |  |
| 3.3.3 | Add 75 ml distilled water and 2-3 drops of phenolphthalein indicator and titrate with 0.05 N NaOH taken in the burette. |  |  |
| 3.3.4 | 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 | *Note the serial number of balance logbook.* |  |  |
| 3.4.3 | Add 25-30 ml distilled water and 2-3 drops of methyl orange indicator and titrate with 0.05 N HCl taken in the burette. |  |  |
| 3.4.4. | 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

**In case blank is Alkaline**

|  |  |
| --- | --- |
| **iii) Alkalinity (as NaOH) % by mass** =    4.0 (V – B) x N1  ------------------------  M | Where,  B =Volume of HCl required for Blank.  V = Volume of HCl required for the test sample  N1= Normality of standard HCl solution  M = Mass in ‘g’ of the sample taken for test |

**In case blank is Acidic**

|  |  |
| --- | --- |
| **iv) Alkalinity (as NaOH) % by mass**  4.0 (VN1 + vN2)  = -----------------------  M | Where,  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 |

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| --- | --- | --- | --- | --- | --- | --- |
| **Sr. No.** | **Name of test** | | | **Result** | **Unit** | **Method of Analysis** |
| 1. | Alkalinity | | |  | % | **IS : 6940 - 1982** |
| Remark / Reference : | | | | | | |
| Analyzed by | | Name |  | | | |
| Dated signature |  | | | |
| Checked by | | Name |  | | | |
| Dated signature |  | | | |