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 sampleN1= 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 titrationN1= Normality of standard HCl solution N2= Normality of standard NaOH solutionM = 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 |  |