Sr. No. in Scope NABL / NON NABL

**Flow chart for analysis of Mancozeb in formulation**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Step** | **Execution** | **Executed By** |
| 1. | Sample No. |  |  |
| 2. | Name of Sample | | |
| **3.** | **KOH in methanol (2N):** |  | |
|  | Weigh 11.2 g of Potassium Hydroxide pellets and dissolve in about  10 mL water and 90 mL of methanol to prepare 2 N solution. |  | |
| **4.** | **1.1N Sulphuric acid:** |  | |
|  |  |  | |
| 3.1 | Pipette out 25 mL of Lead Acetate solution into the first absorber bottle  and 50 mL and 25 mL of 2N Potassium hydroxide solution into the  second and third absorption bottles respectively. | g |  |
| 3.2 | Take 100 mL of 1.1 N Sulphuric acid in the reaction kettle. (Sufficient quantity to see that the ‘T’ joint tube dips in H2SO4). |  |  |
|  | Assemble the apparatus and connect the assembly to the vacuum line. Connect the opening of the reaction flask to the N2 gas cylinder and  pass the N2 gas slowly and adjust the rate of bubbling in the  absorbers to 2-6 bubbles/sec. |  |  |
|  | Boil the contents of the reaction kettle.  Weigh accurately 0.2-0.3 g of a.i. (0.266- 0.4 g, 75 % WP sample) and transfer it to the reaction flask at once. |  |  |
|  | Keep the first absorber with lead acetate solution immersed in a  beaker filled with water kept on a hot plate and maintain the  temperature of the lead acetate solution at 60°C. |  |  |
|  | Keep the temperature of KOH solution in the second and third  absorber bottles at 25+2°C throughout the experiment by keeping  the absorber bottles in a beaker filled with ice cubes. |  |  |
|  | Continue the heating and bubbling for exactly 1 hr and 45 minutes. |  |  |
|  | After digestion is completed, disconnect the apparatus and  quantitatively transfer the potassium hydroxide solution in the two absorption bottles to a 500 mL conical flask. Rinse the absorption  bottles and connecting tubes with 250 ml of distilled water. |  |  |
|  | Add phenolphthalein indicator to the absorber bottles and observe for  the appearance of pink color and ensure that KOH has been quantitatively transferred to the conical flask. |  |  |
|  | Add 30 per cent acetic acid to the conical flask until the solution is  just neutral (pink color just disappears) |  |  |
|  | Cool, add freshly prepared starch solution (1%) and titrate  immediately with 0.1 N Iodine solution till the color changes from colorless to blue. |  |  |
|  | Titre value |  |  |

**6. Calculation:**

Mancozeb content % by mass = 13.551 X N X V   
 M

**Result:**

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|  | Dated signature |  |
| Checked by | Name |  |
| Dated signature |  |

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| Analyzed by | Name |  |
| Dated signature |  |
| Checked by | Name |  |
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