Sr. No. in Scope NABL / NON NABL

**Flow Chart for Analysis of Profenofos and Cypermethrin in Formulation Sample**

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

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sl. No.** | **Step** | **Execution** | | **Executed**  **By** |
| 1. | Sample No. |  |  |  |
| 2.1 | Name of Sample |  |  |  |
| 2.2 | Sample Description |  |  |  |
| 3. | **Procedure** | **R1** | **R2** |  |
| **3.1** | **Preparation of Internal Standard Solution** |  |  |  |
| 3.1.1 | Weight of Dioctyl Adipate (DOA) taken into 100 mL volumetric flask |  |  |  |
| 3.1.2 | *Note the Serial No. in Logbook of Balance* |  |  |  |
| 3.1.3 | Dissolve it in dichloromethane |  |  |  |
| 3.1.4 | Make up the volume up to the mark with dichloromethane |  |  |  |
| **3.2** | **Preparation of Standard Solution** |  |  |  |
| 3.2.1 | Standard weight taken into 100 mL volumetric flask (**Cypermethrin)** | g | g |  |
| 3.2.2 | *Note the Serial No. in Logbook of Balance* |  |  |  |
| 3.2.3 | Make up the volume up to the mark with dichloromethane (stock A) | g | g |  |
| 3.2.4 | Standard weight taken into 50 mL volumetric flask (**Profenofos)** | g | g |  |
| 3.2.5 | *Note the Serial No. in Logbook of Balance* |  |  |  |
| 3.2.6 | volume of DCM added to dissolve | 5 mL | 5 mL |  |
| 3.2.7 | volume of stock A Cypermethrin added | 20 mL | 20 mL |  |
| 3.2.8 | volume of IS added | 20 mL | 20 mL |  |
| 3.2.9 | Make up the volume up to the mark with dichloromethane |  |  |  |
| 3.2.10 | Purity of standard cypermethrin | % | % |  |
| 3.2.11 | Purity of standard Profenofos | % | % |  |
| **3.3** | **Preparation of sample solution** |  |  |  |
| 3.3.1 | Weight of the sample taken into 50 mL volumetric flask | g | g |  |
| 3.3.2 | *Note the Serial No. in Logbook of Balance* |  |  |  |
| 3.3.3 | volume of DCM added to dissolve | 5 mL | 5mL |  |
| 3.3.4 | Add internal standard (DOA) solution (3.1.1) | mL | mL |  |
| 3.3.5 | Dilute up to the mark with dichloromethane |  |  |  |
| 4. | **GC Parameters** |  |  |  |
| **4.1** | **Column:** |  |  |  |
| 4.1.1 | Length: 1 m |  |  |  |
| 4.1.2 | I.D: 2 mm |  |  |  |
| 4.1.3 | 3 % OV -101 on Gas chrom Q (80-100) mesh |  |  |  |
| **4.2** | **Gas** |  |  |  |
| 4.2.1 | Carrier:Nitrogen: 30 mL/min |  |  |  |
| 4.2.2 | Hydrogen: 30 mL/min  Air: 300 mL/min |  |  |  |
| **4.3** | **Temperature** |  |  |  |
| 4.3.1 | Oven: 1900C for 4 min  @ 10°C/min upto  260°C for 4 min |  |  |  |
| 4.3.2 | Injecter: 2450C |  |  |  |
| 4.3.3 | Detector: 2700C |  |  |  |
| **4.4** | **Injection volume:** 1 µl |  |  |  |
| 4.7 | *Note the serial No. in the equipment logbook* |  |  |  |
| 5. | **Result** |  |  |  |
|  | Sample chromatogram no. |  |  |  |
| Standard chromatogram no. |  |  |  |

**6. CALCULATION:**

|  |  |
| --- | --- |
| A’IS’2 x A1 x M1   1. Profenofos content, = --------------------- x P   % by mass A’IS’1 x A2 x M2 | **Where,**  A1 = Peak area of Profenofos in the sample solution  A’IS’1 = Peak area of internal standard in the sample solution  A’IS’2 = Peak area of internal standard in the standard solution  A2 = Peak area of Profenofos in the standard solution  M1 = Mass in ‘g’ of standard Profenofos in the standard solution  M2 = Mass in ‘g’ of sample taken for test  P = Percent purity of Profenofos standard |

|  |  |
| --- | --- |
| A1 x A’IS’2 x M1   1. Cypermethrin content, = ------------------ x P   % by mass A’IS’1 x A2 x M2 | **Where,**  A1 = Peak area of cypermethrin in the sample solution  A’IS’1 = Peak area of internal standard in the sample solution  A’IS’2 = Peak area of internal standard in the standard solution  A2 = Peak area of cypermethrin in the standard solution  M1 = Mass in ‘g’ of cypermethrin in the standard solution  M2 = Mass in ‘g’ of sample taken for test  P = Percent purity of cypermethrin standard |

**Result:**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Sl. No.** | **Name of Test** | | | **Result** | **Unit** | **Method of Analysis** |
| 1. | Active ingredient (Profenofos) | | |  | % | IS - 15235 : 2002 |
| 2. | Active ingredient (Cypermethrin) | | |  | % | IS - 15235 : 2002 |
| Remark / Reference : | | | | | | |
| Analyzed by | | Name |  | | | |
| Dated Signature |  | | | |
| Checked by | | Name |  | | | |
| Dated Signature |  | | | |