Sr. No. in Scope NABL / NON NABL

**Flow chart for analysis of Chlorpyrifos content in formulation sample**

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

|  |  |  |  |
| --- | --- | --- | --- |
| **Sl. No.** | **Step**  | **Execution** | **Executed By**  |
| 1. | Sample No. |  |  |  |
| 2. | Name of Sample |  |  |  |
| 3. | **Procedure** | **R1** | **R2** |  |
| **3.1** | **Preparation of Internal Standard Solution:** |  |  |  |
| 3.1.1 | Weigh 0.5 g of Di-octyl Phthalate (DOP) in a 250 ml Volumetric flask |  g |  g |  |
| 3.1.2 | *Note down the S.No. of balance log book.* |  |  |  |
| 3.1.3 | Dissolve and dilute up to the mark with Ethyl Acetate. |  |  |  |
| **3.2** | **Preparation of Standard Solution:** |  |  |  |
| 3.2.1 | Purity of standard.  |  % |  % |  |
| 3.2.2 | Weigh 0.15 g a.i. of Chlorpyrifos in a 50 ml Volumetric flask. |  g |  g |  |
| 3.2.3 | *Note down the S.No. of balance log book.* |  |  |  |
| 3.2.4 | Add 25 mL of internal standard solution (3.1.3). |  mL |  mL |  |
| 3.2.5 | Dilute up to the mark with Ethyl Acetate |  |  |  |
| **3.3** | **Preparation of Sample Solution:**  |  |  |  |
| 3.3.1 | Note down the percent active ingredient content declared on the sample. |  % |  % |  |
| 3.3.2 | Weigh 0.15 g a.i. of sample in a 50 ml Volumetric flask. |  g |  g |  |
| 3.3.3 | *Note down the S.No. of balance log book.* |  |  |  |
| 3.3.4 | Add 25 mL of internal standard solution (3.1.3). |  mL |  mL |  |
| 3.3.5 | Dilute up to the mark with Ethyl Acetate |  |  |  |
| **4.** | **GC Parameters** |  |  |  |
| **4.1** | **Column** |  |  |  |
| 4.1.1 | Stainless steel, Packed with 3 % OV-101 on gaschrom Q (80 - 100) mesh |  |  |  |
| 4.1.2 | Length: 100 cm |  |  |  |
| 4.1.3 | I.D: 2 mm |  |  |  |
| **4.2** | **Gas** |  |  |  |
| 4.2.1 | Nitrogen: 30 ml/min |  |  |  |
| 4.2.2 | Hydrogen : 45 ml/min |  |  |  |
| 4.2.3 | Air : 450 ml/min |  |  |  |
| **4.3** | **Temperatures** |  |  |  |
| 4.3.1 | Oven : 1700C hold for 4 min, @ 20°C/min, 240°C hold for 2.5 min  |  |  |  |
| 4.3.2 | Injecter : 2500C |  |  |  |
| 4.3.3 | Detector : 2700C |  |  |  |
| **4.4** | **Injection volume:** 2 µl |  |  |  |
| **5.** | **Result**  |  |  |  |
| 5.1. |  | Sample chromatogram no.  |
| 5.2 |  | Standard chromatogram no.  |

**6. CALCULATION:**

A1 x A’IS’2 x M1

 Chlorpyrifos content, % by mass = --------------------- x P

 A’IS’1 x A2 x M2

**Where,**

 A1 = Peak area of chlorpyrifos 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 chlorpyrifos in the standard solution

M1 = Mass in ‘g’ of standard chlorpyrifos in the standard solution

M2 = Mass in ‘g’ of chlorpyrifos sample taken for test

P = Percent purity of chlorpyrifos standard

**Result:**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **SI. No.** | **Name of Test** | **Result** | **Unit** | **Method of Analysis** |
| 1 | Active ingredient |  | % | IS 8963:2006 (Reaffirmed 2010) |
| Remark / Reference :  |
|  |
| Analyzed by | Name  |  |
| Dated Signature |  |
| Checked by | Name  |  |
| Dated Signature |  |