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 | |  | | |