

PESTICIDE FORMULATION & RESIDUE ANALYTICAL CENTRE, PMD, NIPHM, HYDERABAD

Sr. No. in Scope

NABL / NON NABL

Flow chart of Acidity test for Wettable Powder (WP) & Dusting Powder (DP) formulation

Sr. No.	Step	Date of Analysis	
		Execution	Executed By
1.	Sample No.		
2.	Name of Sample		
3.	Procedure		
3.1	Sample Titration		
3.1.1	Weigh 10 g of sample in 250 ml beaker	g	
3.1.2	<i>Note the serial No. of balance log book</i>		
3.1.3	Add 25 ml of acetone and mix well. Warm the flask gently		
3.1.4	Add 75 ml of water and let it stand for an hour. Filter the supernatant aqueous extract.		
3.1.5.	Pipette out 50 mL of the filtrate (3.1.4.) into a 250 mL conical flask.		
3.1.5	Titrate with 0.05 N NaOH solution using methyl red or bromocresol purple indicator		
3.2	Note down the burette reading	ml	
3.2.1	Blank titration		
3.2.2	Prepare a solution of 25 ml acetone and 75 ml distilled water in a 250 ml conical flask		
3.2.3	Take an aliquot of 50 ml from the solution 3.2.2		
3.2.4	Add indicator Bromocresol purple / Methyl Red		
3.2.5	Neutralise with 0.05 N NaOH (if blank sample is acidic)/ 0.05 N HCl (if blank sample is alkaline)		
3.2.6	Note down the burette reading	mL	
3.3	Normality of Sodium hydroxide		
3.3.1	Weigh 0.3- 0.4 g of Potassium hydrogen phthalate (KHP) in conical flask.	g	
3.3.2	<i>Note the serial No. of balance log book</i>		
3.3.3	Add 75 ml distilled water and 2-3 drops of phenolphthalein indicator and titrate with 0.05 N NaOH taken in burette.		
3.3.4	Note down the burette reading	mL	
3.4	Normality of Hydrochloric acid		
3.4.1	Weigh 0.1 g of Sodium carbonate (Na ₂ CO ₃) in 250 ml conical flask		
3.4.2	<i>Note the serial No. of balance log book</i>		
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 burette.		
3.4.4	Note down the burette reading	mL	

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Revised Date	:	11/11/2013	Next Revision Date	:	11/11/2015
Prepared By		Checked By		Approved & Issued By	
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4. Calculation:

$$\text{i) Normality of NaOH} = \frac{\text{Wt. of KHP} \times 1000}{\text{Burette Reading} \times 204.22}$$

$$204.22 = \text{Equivalent Weight of KHP} \\ \text{Wt. of Na}_2\text{CO}_3 \times 1000$$

$$\text{ii) Normality of HCl} = \frac{\text{Wt. of Na}_2\text{CO}_3 \times 1000}{\text{Burette Reading} \times 53}$$

$$53 = \text{Equivalent Weight of Na}_2\text{CO}_3$$

In case blank is Acidic

iii) Acidity (as H₂SO₄) % by mass =

$$\frac{4.9 \times 2 (V - B) \times N_1}{M}$$

Where,

V= Volume of NaOH consumed by the sample

B= Volume of NaOH consumed by blank.

N₁= Normality of NaOH solution.

M = Mass in 'g' of the sample taken for

In case blank is Alkaline

iv) Acidity (as H₂SO₄) % by mass =

$$\frac{4.9 \times 2 (VN_1 + vN_2)}{M}$$

Where,

V = Volume of NaOH required for the test sample

v = Volume of HCl required for blank titration

N₁= Normality of standard NaOH solution

N₂= Normality of standard HCl solution

M = Mass in 'g' of the sample taken for test

Sr. No.	Name of test	Result	Unit	Method of Analysis
1.	Acidity		%	IS - 6940 : 1982

Remark / Reference :

Analyzed by	Name	
	Dated signature	
Checked by	Name	
	Dated signature	

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