

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

Sr. No. in Scope

NABL / NON NABL

Flow chart of Acidity test for Emulsifiable Concentrate (EC) 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 conical flask	g	
3.1.2	Add 100 mL distilled water		
3.1.3	Add indicator Methyl red / Bromocresol purple		
3.1.4	Titrate with 0.05 N NaOH and note the burette reading	mL	
3.2	Blank titration		
3.2.1	Take 100 mL distilled water in 250 mL conical flask		
3.2.2	Add indicator Bromocresol purple / Methyl Red		
3.2.3	Neutralise with 0.05 N NaOH (if blank is acidic)/ 0.05 N HCl (if blank is alkaline)		
3.2.4	Note the burette reading	mL	
3.3	Normality of Sodium hydroxide		
3.3.1	Weigh 0.3- 0.4 g of GR grade Potassium hydrogen phthalate (KHP) in conical flask.	g	
3.3.2	Add 75 mL distilled water and 2-3 drops of phenolphthalein indicator and titrate with 0.05 N NaOH solution taken in burette.		
3.3.3	Note the burette reading	mL	
3.4	Normality of Hydrochloric acid		
3.4.1	Weigh 0.1 g of GR grade Sodium carbonate (Na ₂ CO ₃) in 250 mL conical flask		
3.4.2	Add 25-30 mL distilled water and 2-3 drops of methyl orange indicator and titrate with 0.05 N HCl solution taken in burette.		
3.4.3	Note the burette reading	mL	

4. Calculation:

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

204.22 = Equivalent Weight of KHP

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Prepared By		Checked By		Approved & Issued By	
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$$\text{ii) Normality of HCl} = \frac{\text{Wt. of Na}_2\text{CO}_3 \times 1000}{\text{Burette Reading} \times 53}$$

53 = Equivalent Weight of Na₂CO₃

In case blank is Acidic

iii) Acidity (as H₂SO₄) % by mass = $\frac{4.9 (V - B) \times N_1}{M}$	Where, V = Volume of NaOH consumed by the sample B = Volume of NaOH consumed by blank. N ₁ = Normality of NaOH solution. M = Mass in 'g' of the sample taken for test
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In case blank is Alkaline

iv) Acidity (as H₂SO₄) % by mass = $\frac{4.9 (VN_1 + vN_2)}{M}$	Where, V = Volume of NaOH required for the test sample v = Volume of HCl required for blank titration N ₁ = Normality of standard NaOH solution N ₂ = Normality of standard HCl solution M = Mass in 'g' of the sample taken for test
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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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