MONSANTO CHEMICAL COMPANY

Anniston, Alabama
Plant Laboratory

STANDARD ANALYTICAL METHOD

Method No. 050

		DATE ISSUED	PAGE
Product	AROCLORS AND PYRANOLS	5/19/61	1 OF 2
		WRITTEN BY	APPROVED BY
Test	ACID NUMBER	W.W.K.	W.W.K.

This Method ☐ Supersedes ☒ Revises Instructions Issued On 6/14/57

SCOPE

This method describes the procedure for determining acid compounds in Aroclors and Pyranols using a non-aqueous medium and titrating with NaOH to a phenol red endpoint.

EQUIPMENT

1. 250-ml Almquist Flasks - LaMotte Chemical Products Company, Chestertown, Md.
2. 6-Hole comparator block with etched glass - supplier same as 1.
3. 10-ml micro buret.

REAGENTS

1. Solvent - mix 600 ml benzene, 200 ml ethyl alcohol, and 200 ml acetone in a liter flask. Add 5 ml of 0.2% phenol red. Mix well.
2. Phenol Red, 0.2% - to a 100 ml volumetric add 0.2g. of phenol red (phenolsulfonphthalein) and 5.6 ml of 0.1 N NaOH. Dilute to volume with ethyl alcohol.
3. 0.01 N NaOH - Dilute 0.1 N NaOH to 100 ml with water in a 100 ml volumetric. Calculate volume of 0.1 N NaOH to use as follows:

$$\text{ml } 0.1\ N\ \text{NaOH} = \frac{100 \times 0.01}{\text{normality of } 0.1\ N\ \text{NaOH}}$$

DETERMINATION

1. Add ca. 200 ml of solvent to a 250-ml Almquist flask.
2. Add 0.01 N NaOH until a distinct reddish pink color is obtained.
3. Pour about half of this blanked solvent into another clean dry Almquist flask.

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4. Tare the flask and solvent on a beam balance.

5. Mix the sample well and add 50 ± 1 g. of sample to the flask. Reweigh to obtain exact weight.

6. Drain some of the blanked solvent from step 1 into the side arm of the flask.

7. Place this side arm in one slot of the comparator block.

8. Using 0.01 N NaOH titrate the flask containing the sample to the same color as the blank. The comparison is made by draining some of the solution into the side arm, placing side arm in slot in comparator block and comparing the two side arm colors while holding block up to light.

9. The endpoint is reached when the color in the blank and sample side arm match. (See discussion-2).

CALCULATION

$$\text{Acid No. (mg KOH/g. sple)} = \frac{\text{ml 0.01 N NaOH} \times 0.561}{\text{wt. sample}}$$

Report to nearest 0.001.

DISCUSSION

1. Clean the flasks up after each use with acetone or benzene.

2. Sometimes the exact mating of color between sample and blank is difficult. In these cases compare the intensity of the red color.

3. The acid number is defined as the milligrams of KOH required to neutralize one gram of the sample. In this test it will include acid from hydrochloric acid, ferric chloride or any other inorganic acids. It will be affected by presence of organic acids but may not estimate them accurately.

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