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**Committee D16 on Aromatic Hydrocarbons and Related Chemicals
Subcommittee D16.02 on Oxygenated Aromatics**

Research Report D16-1058

**Interlaboratory Study to Establish Precision Statements for ASTM
D8032, Standard Test Method for Acid Number of Terephthalic Acid
(TA) by Color-Indicator Titration**

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1. Introduction:

This test method covers the determination of acid number in terephthalic acid (TA) by color-indicator titration. For TA product, acid number is usually within 674 - 676 mg KOH/g.

This test method is suitable for setting specifications and for use as an internal quality control tool where these products are produced or are used.

2. Test Method:

A TA sample is dissolved in dimethyl sulfoxide and titrated with standard sodium hydroxide solution to the end point indicated by the color change of the added phenolphthalein solution (colorless in acid and pink in base). The acid number is calculated as milligrams of KOH per gram of TA sample. Its theoretical value of TA sample is 675.5 mg KOH/g.

3. Participating Laboratories:

The following laboratory participated in this study:

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4. Description of Samples:

There was one TA sample used for this study. It was provided by Sinopec Yangzi Petrochemical Company Ltd.

5. Interlaboratory Study Instructions

- 5.1 Dissolve TA sample in dimethyl sulfoxide and stir the solution gently until the entire solid has dissolved
- 5.2 Then diluted with CO₂-free water and add 0.1 mL of the phenolphthalein solution as indicator.
- 5.3 Titrate using the standard NaOH solution and swirl flask contents gently during titration to a 15-s pink end point. Record the amount of titrant required.
- 5.4 Perform a blank titration by repeating the above steps without adding the TA sample.

6. Description of Equipment/Apparatus:

- 6.1 Analytical Balance, capable of weighing ± 0.0001 g.