



# Standard Test Method for Measuring Apparent pH of Water Insoluble Phenol-Formaldehyde Resins<sup>1</sup>

This standard is issued under the fixed designation D 4613; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope

1.1 This test method covers the measurement of the apparent pH of a water extract of an acetone solution of water insoluble phenol-formaldehyde resin.

1.2 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

## 2. Referenced Documents

2.1 *ASTM Standards:*

D 1193 Specification for Reagent Water<sup>2</sup>

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode<sup>3</sup>

## 3. Summary of Test Method

3.1 Aqueous test solutions are generally used in determining pH. In this test method the resin is dissolved in acetone, water is added, and the apparent pH is measured with a pH meter.

## 4. Significance and Use

4.1 The hydrogen ion concentration (pH) is of critical importance due to its effect on the performance of the end product. The pH is widely used in quality control and process control.

## 5. Apparatus

5.1 *pH Meter*, complying with Test Method E 70.

5.2 *Beaker*, 250-mL.

5.3 *Balance*, accurate to 0.1 g.

## 6. Reagents

6.1 *Purity of Reagents*—Reagent grade chemicals shall be

used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.<sup>4</sup> Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

6.2 *Water*, conforming to Type II of Specification D 1193.

6.3 *Acetone*, reagent grade.

6.4 *pH Standard Solutions*—4, 7, 10 for standardization of pH meter.

## 7. Procedure

7.1 Standardize the pH meter with the 4, 7, or 10 standard buffer in the expected testing range.

7.2 Weigh a  $10 \pm 0.1$  g specimen of the resin under test into a 250-mL beaker.

7.3 Add 40 mL of acetone and dissolve the specimen. Add 40 mL of water and stir for 5 min at room temperature. Allow the solution to settle for 1 min. Immerse the electrode into the solution ( **Caution:** Keep undissolved resin away from electrode) and record the result.

7.4 Wash the electrode with acetone, followed by water until clean or until the pH meter returns to the standard buffer reading.

## 8. Report

8.1 Report the pH to 0.1 units.

## 9. Precision and Bias

9.1 The precision and bias for this test method have not been determined.

## 10. Keywords

10.1 pH; phenol-formaldehyde resins; water-insoluble

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<sup>2</sup> *Annual Book of ASTM Standards*, Vol 11.01.

<sup>3</sup> *Annual Book of ASTM Standards*, Vol 15.05.

<sup>4</sup> *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

 **D 4613**

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