Designation: D 6979 – 08

Standard Test Method for Polyurethane Raw Materials: Determination of Basicity in Polyols, Expressed as Percent Nitrogen[1]

This standard is issued under the fixed designation D 6979; 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 (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This test method measures the basic constituents in polyols that are soluble in glacial acetic acid and reactive with perchloric acid. Samples containing 0.3 – 10 % nitrogen have been evaluated by this method. This test method is applicable to polyether polyols and polyether polyol blends that are used in urethane reactions. (See Note 1.)

1.2 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.3 *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.*

NOTE 1—This standard is equivalent to ISO 25761:08

2. Referenced Documents

2.1 *ASTM Standards:* [2]

D 883 Terminology Relating to Plastics

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method see Terminology D 883.

3.2 *Definitions of Terms Specific to This Standard:*

3.2.1 *percent nitrogen*—the quantity of perchloric acid-titratable base, expressed as a weight percentage of nitrogen in a sample.

4. Summary of Test Method

4.1 The sample is dissolved in glacial acetic acid. The resulting single-phase solution is titrated at room temperature to a potentiometric end point with a standardized solution of perchloric acid in acetic acid. Results are reported as percent nitrogen.

5. Significance and Use

5.1 This test method is suitable for quality control, as a specification test, and for research. The results are measures of batch-to-batch uniformity and may be useful in estimating reactivity.

5.1.1 The percent nitrogen can be used to characterize a polyol or indicate amounts of certain components in a polyol blend.

5.1.2 It is permissible to also express the results in equivalents of base per gram of sample, if desired.

6. Apparatus

6.1 *Potentiometric Automatic Titrator*

6.2 *Autotitrator Buret with Dosing Device, 20-mL*

6.3 *pH Glass Electrode and Reference Electrode or a Combination Glass Electrode*

6.4 *Analytical Balances, capable of weighing to the nearest 0.01g and 0.0001 g*

6.5 *Magnetic Stirrer/Hotplate*

7. Reagents and Materials

7.1 *Purity of Reagents*—Use reagent-grade chemicals in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society where such specifications are available.[3] It is permissible to use other grades provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

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[1] This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.22 on Cellular Materials - Plastics and Elastomers.

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

[3] *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.