



Designation: D6979 – 18

# Standard Test Method for Polyurethane Raw Materials: Determination of Basicity in Polyols, Expressed as Percent Nitrogen<sup>1</sup>

This standard is issued under the fixed designation D6979; 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 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

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

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>

[D883 Terminology Relating to Plastics](#)

[E180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial and Specialty Chemicals \(Withdrawn 2009\)](#)<sup>3</sup>

<sup>1</sup> 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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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

<sup>3</sup> The last approved version of this historical standard is referenced on [www.astm.org](http://www.astm.org).

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

2.2 *ISO Standards*:<sup>4</sup>

[ISO 25761 Plastics—Polyols for use in the production of polyurethanes—Determination of basicity \(total amine value\), expressed as percent nitrogen](#)

## 3. Terminology

3.1 *Definitions*—For definitions of terms used in this test method see Terminology [D883](#).

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 are 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*

<sup>4</sup> Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

\*A Summary of Changes section appears at the end of this standard