Designation: D2522 – 03 (Reapproved 2008)ε2

Standard Test Method for Chlorine Content of Polybutenes Used for Electrical Insulation[1]

This standard is issued under the fixed designation D2522; 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.

ε[1] NOTE—The mercury warning was editorially added in April 2009.
ε[2] NOTE—In 7.7, 20 L was changed to 2 L editorially in August 2009.

1. Scope

1.1 This test method describes the determination of the total chloride content of polybutenes used for electrical insulation.

1.2 **Warning**—Mercury has been designated by EPA and many state agencies as a hazardous material that can cause central nervous system, kidney, and liver damage. Mercury, or its vapor, may be hazardous to health and corrosive to materials. Caution should be taken when handling mercury and mercury-containing products. See the applicable product Material Safety Data Sheet (MSDS) for details and EPA's website (http://www.epa.gov/mercury/faq.htm) for additional information. Users should be aware that selling mercury or mercury-containing products, or both, in your state may be prohibited by state law.

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.* For specific hazards information, see Section 8.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D878 Test Method for Inorganic Chlorides and Sulfates in Insulating Oils

D1193 Specification for Reagent Water

3. Summary of Test Method

3.1 Organically bound chlorine is converted into sodium chloride by reaction with sodium biphenyl solution. The sodium chloride formed is extracted with dilute nitric acid, and the chlorine content of the aqueous phase is determined by potentiometric titration.

4. Significance and Use

4.1 Chlorine is normally present in polybutenes in small amounts, usually below 50 ppm, as organically bound chlorine. Inorganic chloride is normally not present.

NOTE 1—The qualitative presence or absence of inorganic chloride may be tested by Test Method D878.

5. Interferences

5.1 The presence of substances which form insoluble silver compounds, such as sulfides, will give high results. Such substances are not normally present in polybutenes.

6. Apparatus

6.1 *Separatory Funnel,* 250-mL.

6.2 *Potentiometeric Titrimeter,* automatic recording, or manual.

6.3 *Electrodes:*

6.3.1 Silver and glass electrode combination is preferred.

6.3.2 A silver electrode with a mercurous sulfate reference electrode is an acceptable alternative.

6.4 *Microburet,* 5-mL, with 0.01-mL divisions.

7. Reagents

7.1 *Purity of Reagents*—Use reagent grade chemicals 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. [3] Other grades may be used,

[1] This test method is under the jurisdiction of ASTM Committee D27 on Electrical Insulating Liquids and Gases and is the direct responsibility of Subcommittee D27.06 on Chemical Test.

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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.