



Designation: D6143 – 23

Standard Test Method for Iron Content of Bisphenol A (4,4' - Isopropylidenediphenol)¹

This standard is issued under the fixed designation D6143; 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 covers the determination of the iron content of bisphenol A (4,4'-isopropylidenediphenol).

1.2 This test method has a lower detection limit of 0.1 mg/kg, and an upper limit of 10 mg/kg of iron in bisphenol A. If the iron (Fe) content is higher, it may be necessary to dilute the sample. A longer path length cell can also be used for better accuracy at lower Fe levels, as well as calibration within the range expected (for example, 0 mg/kg to 1 mg/kg versus 0 mg/kg to 10 mg/kg for samples expected to be in the 0 mg/kg to 1 mg/kg range).

1.3 In determining the conformance of the test results using this method to applicable specifications, results shall be rounded off in accordance with the rounding-off method of Practice E29.

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

1.5 *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 limits prior to use.* For a specific hazard statement, see Section 9.

1.6 *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:²

D1193 Specification for Reagent Water

¹ This test method is under the jurisdiction of ASTM Committee D16 on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of D16.02 on Oxygenated Aromatics.

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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.

D4297 Practice for Sampling and Handling Bisphenol A(4,4' -Isopropylidenediphenol)

D4790 Terminology of Aromatic Hydrocarbons and Related Chemicals

D6809 Guide for Quality Control and Quality Assurance Procedures for Aromatic Hydrocarbons and Related Materials

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

E1615 Test Method for Determination of Trace Quantities of Iron by Visible Spectrophotometry

2.2 Other Documents:

OSHA Regulations, 29 CFR paragraphs 1910.1000 and 1910.1200 Air contaminants – table of exposure limits and hazard communication³

3. Terminology

3.1 See Terminology D4790 for definitions of terms used in this standard.

4. Summary of Test Method

4.1 Bisphenol A is dissolved in methanol, then treated with hydroxylamine hydrochloride to convert any ferric iron present to ferrous iron. The ferrous iron is then complexed with an iron reagent to form a purple/maroon chromophore that is quantified by visible spectrophotometry at 560 nm.

5. Significance and Use

5.1 Iron may increase the color of bisphenol A and affect other properties of end-use products.

5.2 High purity bisphenol A typically has less than 1 mg/kg of iron.

6. Interferences

6.1 No direct interferences have been observed in the use of this method.

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.

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