Designation: D 4789 – 94

Standard Test Method for Solution Color of Bisphenol A (4,4′-Isopropylidenediphenol)[1]

This standard is issued under the fixed designation D 4789; 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 describes the procedure for determination of the Platinum-Cobalt Color of 4,4′-Isopropylidenediphenol, commercially known as bisphenol A, dissolved in methanol.

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.* For a specific hazard statement, see Section 8.

2. Referenced Documents

2.1 *ASTM Standards:*

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)[2]

D 4297 Practice for Sampling and Handling 4,4′-Isopropylidenediphenol (Bisphenol A)[2]

E 180 Practice for Determining the Precision of ASTM Methods for Analysis and Testing of Industrial Chemicals[3]

2.2 *Other Documents:*

OSHA Regulations, 29 CFR, paragraphs 1910.1000 and 1910.1200[4]

NIST Letter Circular LC 1017, Standard for Checking the Calibration of Spectrophotometers (200 to 1000 nm)[5]

3. Summary of Test Method

3.1 Bisphenol A is dissolved in methanol. This solution is then transferred to a color comparison tube and the color compared to that of the Platinum-Cobalt Color Standards, either visually or by means of a spectrophotometer. The color is reported as that closest to the applicable standard.

4. Significance and Use

4.1 Color is caused by impurities in the bisphenol A. The acceptable amount of color depends on the end-use of the bisphenol A.

4.2 This test method can be used for internal quality control or for setting specifications.

5. Interferences

5.1 The presence of any turbidity or haze will affect the color reading.

5.2 A bisphenol A color that is off-hue, or tinted with respect to the color standards, may interfere with proper color comparison.

6. Apparatus

6.1 *Color Comparison Tubes*—Matched 100 mL, tall-form Nessler tubes, provided with ground-on, optically clear, glass caps. Tubes should be selected so that the height of the 100-mL graduation mark is 275 to 295 mm above the bottom of the tube.

6.2 *Color Comparator*, constructed to permit visual comparison of light transmitted through tall-form, 100 mL Nessler tubes in the direction of their longitudinal axis; and so that white light is passed through or reflected off a white glass plate and directed with equal intensity through the tubes. It should be shielded so that no light enters the tubes from the sides.

6.3 *Spectrophotometer*, equipped for liquid samples and for measurements in the visible region.[6]

NOTE 1—The spectrophotometer must be clean and in excellent operating condition. The instrument should be calibrated in accordance with the instructions given in NIST *Letter Circular LC 1017*. For good agreement with the visual method, the spectrophotometer or colorimeter should be a filter type instrument.

6.4 *Spectrophotometer Cells*, cells of different path lengths may be used as long as the equipment is calibrated with the same length cells as the sample solution.

6.5 *Filter Paper*, glass fiber filter, 1.2-µm pore retention.

7. Reagents

7.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that

[1] This test method is under the jurisdiction of ASTM Committee D-16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.0C on Oxygenated Aromatics.

Current edition approved April 15, 1994. Published June 1994. Originally published as D 4789 – 88. Last previous edition D 4789 – 88.

[2] *Annual Book of ASTM Standards*, Vol 06.04.

[3] *Annual Book of ASTM Standards*, Vol 15.05.

[4] Available from Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402.

[5] Available from National Institute of Standards and Technology, U.S. Department of Commerce, Gaithersburg, MD 20899.

[6] Beckman Model B, available from Beckman Instruments, 41365 Vincenti Ct., Novi, MI 48050, or its equivalent, has been found to be satisfactory for this purpose.