



Designation: D4890 – 24

Standard Test Methods for Polyurethane Raw Materials: Determination of Gardner and APHA (Platinum-Cobalt) Color of Polyols¹

This standard is issued under the fixed designation D4890; 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 These test methods visually measure the color of clear polyester and polyether liquid polyols. They apply only to materials whose colors have light-absorption characteristics similar to those of the standards. An additional Platinum-Cobalt color method is outlined in Test Method D1209 (see Note 1).

1.2 *Units*—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—Test Method A of this standard is equivalent to ISO 6271-1. Test Method B of this standard is equivalent to ISO 4630-1.

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:²

D883 Terminology Relating to Plastics

D1193 Specification for Reagent Water

D1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)

D1544 Test Method for Color of Transparent Liquids (Gardner Color Scale)

¹ These test methods are under the jurisdiction of Committee D20 on Plastics and are 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 www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

D5386 Test Method for Color of Liquids Using Tristimulus Colorimetry

D6166 Test Method for Color of Pine Chemicals and Related Products (Instrumental Determination of Gardner Color)

E308 Practice for Computing the Colors of Objects by Using the CIE System

E456 Terminology Relating to Quality and Statistics

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

E1164 Practice for Obtaining Spectrometric Data for Object-Color Evaluation

E2935 Practice for Evaluating Equivalence of Two Testing Processes

2.2 ISO Standards:³

ISO 4630-1 Clear Liquids—Estimation of Colour by the Gardner Colour Scale—Part 1: Visual Method

ISO 4630-2 Clear Liquids—Estimation of Colour by the Gardner Colour Scale—Part 2: Spectroscopic Method

ISO 6271-1 Clear Liquids—Estimation of Colour by the Platinum-Cobalt Scale—Part 1: Visual Method

ISO 6271-2 Clear Liquids—Estimation of Colour by the Platinum-Cobalt Scale—Part 2: Spectroscopic Method

3. Terminology

3.1 Terms used in this standard are defined in accordance with Terminology D883, unless otherwise specified. For terms relating to precision and bias and associated issues, the terms used in this standard are defined in accordance with Terminology E456.

4. Summary of Test Method

4.1 In Test Method A, the color of the material to be tested is compared to a series of Gardner color standards with defined chromaticity coordinates. The results are reported as the color standard, which best matches the sample.

4.2 In Test Method B, the color of the material to be tested is compared to a series of Platinum-Cobalt color standards with defined chemical composition and absorbance values in the

³ 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