



Standard Test Method for Color of Clear Electrical Insulating Liquids (Platinum-Cobalt Scale)¹

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1. Scope

1.1 This test method covers a procedure for the visual determination of the color of askarels and other clear liquids.

1.2 The values stated in acceptable metric units are to be regarded as the 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 and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

D 1193 Specification for Reagent Water²

D 1209 Test Method for Color of Clear Liquids (Platinum-Cobalt Scale)³

D 1500 Test Method for ASTM Color of Petroleum Products (ASTM Color Scale)⁴

3. Summary of Test Method

3.1 The color determined by this test method is a numerical value derived by comparing the color of the test specimen with that of a series of numbered color reference standards using transmitted light under prescribed conditions. The procedure described is based on that for measuring the color of water and clear liquids according to the platinum-cobalt scale. This scale is suitable for measurements over the color range from 5 to 300. The color of test specimens darker than 300 on the platinum-cobalt scale must be measured according to the ASTM Color Scale as described in Test Method D 1500. The use of the platinum-cobalt scale in this way is primarily of value as an expansion of the lower part of the ASTM Color Scale, especially in the range between 0 and 1.

4. Significance and Use

4.1 Color is significant chiefly as an indicator of contami-

nation in electrical insulating liquids. Frequently this contamination is the result of solvent action between the askarel and other materials in the apparatus involved. No definite relationship can be established between color and the physical and electrical characteristics of the liquid; for that reason color in itself has limited value as a measure of condition. For more precise determination of color, Test Method D 1209 may be used.

5. Apparatus

5.1 *Color Comparison Tubes*—Matched, tall-form Nessler tubes, graduated at the 50-mL mark, and provided with ground-on, optically clear glass caps.

5.2 *Color Comparator*—A color comparator constructed to permit visual comparison of light transmitted through tall-form Nessler tubes in the direction of their longitudinal axes. The comparator should be constructed so that white light is passed through or reflected off a white glass plate and directed with equal intensity through the tubes, and should be shielded so that no light enters the tubes from the side.⁵

6. Reagents

6.1 *Purity of Reagents*—Use reagent grade chemicals in all tests. Unless otherwise indicated, all reagents will conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.⁶ Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

6.2 *Purity of Water*—Use reagent water conforming to Specification D 1193.

6.3 *Solvent*, suitable, clear.

6.4 *Cobaltous Chloride* ($\text{CoCl}_2 \cdot 6\text{H}_2\text{O}$).

6.5 *Hydrochloric Acid* (sp gr 1.19)—Concentrated hydrochloric acid (HCl).

6.6 *Potassium Chloroplatinate* (K_2PtCl_6).

¹ This test method is under the jurisdiction of ASTM Committee on D-27 on Electrical Insulating Liquids and Gases and is the direct responsibility of Subcommittee D 27.07 on Physical Tests.

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² *Annual Book of ASTM Standards*, Vol 11.01.

³ *Annual Book of ASTM Standards*, Vol. 06.04.

⁴ *Annual Book of ASTM Standards*, Vol 05.01.

⁵ A unit available from Scientific Glass and Instruments, Inc. P.O. Box 6, Houston, TX 77001, has been found suitable for this purpose.

⁶ “Reagent Chemicals, American Chemical Society Specifications,” Am. Chemical Soc., Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see “Reagent Chemicals and Standards,” by Joseph Rosin, D. Van Nostrand Co., Inc., New York, NY and the “United States Pharmacopeia.”