



Designation: ~~D1524 – 94~~ (Reapproved 2010) D1524 – 15

Standard Test Method for Visual Examination of Used Electrical Insulating Oils of Petroleum Origin Liquids in the Field¹

This standard is issued under the fixed designation D1524; 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 for visual examination is applicable to ~~mineral oils of petroleum origin~~ electrical insulating liquids that have been used in transformers, oil circuit breakers, or other electrical apparatus as insulating or cooling media, or both.

~~1.2 The values stated in inch-pound units are to be regarded as standard. The values given in parentheses are mathematical conversions to SI units that are provided for information only and are not considered standard.~~

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.*

2. Referenced Documents

2.1 *ASTM Standards:*²

[D1500 Test Method for ASTM Color of Petroleum Products \(ASTM Color Scale\)](#)

[D2129 Test Method for Color of Clear Electrical Insulating Liquids \(Platinum-Cobalt Scale\)](#)

3. Summary of Test Method

3.1 The color of the test specimen is estimated by visually comparing the color of a specified thickness of the sample with a series of artificial standard color disk filters in a specified comparator.

3.1 The condition of the test specimen is estimated by observation of cloudiness, foreign particles, or suspended matter in the sample by reflected light.

4. Significance and Use

4.1 By use of this test method and Test Methods D1500 or D2129 the color and condition of a test specimen of ~~oil~~ electrical insulating liquid may be estimated during a field inspection, thus assisting in the decision as to whether or not the sample should be sent to a central laboratory for full evaluation. Cloudiness, particles of insulation, products of metal corrosion, or other undesirable suspended materials, as well as any unusual change in color may be detected. ~~For precise determination of color in the laboratory, Test Method D1500 should be used.~~

5. Apparatus

5.1 ~~Color Comparator~~ Sample Container—A color comparator suitable for estimating the color of petroleum products on the ASTM Color Scale, and for the examination of the test specimen by reflected light (Tyndall beam effect). The sample vessel from a color comparator, or a container in which light can be projected from the bottom into the sample.

5.2 *Light*—A light source such as a pen light with a No. 222 bulb.

5.3 *Cloth*—Photographer's focusing cloth.

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 D27.07 on Physical Tests.

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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.