



Standard Test Methods for TITANIUM DIOXIDE IN PAPER¹

This Standard is issued under the fixed designation D 921; 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.

1. Scope

1.1 These methods cover the determination of titanium dioxide in paper. A qualitative method and two optional quantitative methods are given, as follows:

	Sections
Method A—Qualitative Test	6 and 7
Method B—Quantitative Determination by the Volumetric Method	8 to 12
Method C—Quantitative Determination by the Colorimetric Method	13 to 18

1.2 Method C is preferable when the amount of titanium dioxide in the ash is less than 0.01 g (Note 1). This method requires the use of a spectrophotometer or similar instrument for measuring light transmission.

NOTE 1—The presence of less than 0.01 g of titanium dioxide may be due to insufficient paper sample for volumetric analysis, or paper with a high filler content other than titanium dioxide, which is sometimes difficult to dissolve properly, due to bumping.

2. Significance

2.1 Since titanium dioxide is one of the most expensive mineral constituents used in paper, it is frequently desirable to know how much is present. This is particularly important when the pigment is used as a beater filler where there is always some question as to how much is actually being retained in the web. The method, therefore, has significance in control, in research where the effect of various degrees of pigmentation is to be determined, and in acceptance, since papers in which titanium dioxide is a component usually sell at a premium price.

3. Purity of Reagents

3.1 Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents shall conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society, where such specifications are available.² 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.

3.2 Unless otherwise indicated, references to water shall be understood to mean reagent water conforming to ASTM Specification D 1193, for Reagent Water.³

4. Sampling

4.1 Sample the paper in accordance with ASTM Method D 585, Sampling and Accepting a Single Lot of Paper, Paperboard, Fiberboard, or Related Product.³

5. Sample for Analysis

5.1 Ignite sufficient paper to yield the required amount of ash (Sections 7 and 11) as described in ASTM Method D 586, Test for Ash in Paper.³

¹ These methods are under the jurisdiction of ASTM Committee D-6 on Paper and Paper Products.

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² "Reagent Chemicals, American Chemical Society Specifications," Am. Chem. Soc., Washington, D. C. 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, N. Y., and the "United States Pharmacopoeia."

³ *Annual Book of ASTM Standards*, Part 20.