

T 529 om-04

PROVISIONAL METHOD – 1974
OFFICIAL METHOD – 1982
REVISED – 1998
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Surface pH measurement of paper

1. Scope

1.1 This non-destructive test may be used to measure the hydrogen ion concentration (pH) on the surface of the paper in books and documents that constitute the collections of libraries and government archives.

1.2 This method serves as an alternative to TAPPI T 509 “Hydrogen Ion Concentration (pH) of Paper Extracts - Cold Extraction Method,” and TAPPI T 435 “Hydrogen Ion Concentration (pH) of Paper Extracts - Hot Extraction Method,” because it avoids the destruction of printed material in the determination of the permanence expected for paper (see also 11.2).

1.3 pH values obtained through the application of this method to sized materials such as writing, printing, and industrial papers reflect only the pH of the surface of these materials and should not be construed as pH values which may be determined by the cold water extraction method of the same material (1).

2. Summary

A flat combination electrode is immersed in a drop of water on the surface of the paper sample. The pH of the surface of the paper is determined with high accuracy and repeatability without the requirement of sample destruction (2,3).

3. Significance

3.1 Because the useful life of most papers is primarily a function of the acidity of the paper (4,5), it is necessary that the concentration of the hydrogen ion in the paper be known (4) so that appropriate preservation and/or restoration techniques may be employed to extend the useful life of books and documents which are determined to be acidic.

3.2 Since books and documents (some of which are very valuable or irreplaceable) cannot be destroyed or otherwise defaced for the purpose of pH determination, a need exists for a convenient procedure which is accurate but does not require destruction or extensive water soaking of the paper samples to be tested. This non-destructive method accomplishes this need (6,7,8,9).