

Standard Method of Test for ROSIN IN PAPER AND PAPERBOARD¹



A.S.T.M. Designation: D 549 - 46

ADOPTED, 1941; REVISED, 1946.²

This Standard of the American Society for Testing Materials is issued under the fixed designation D 549; the final number indicates the year of original adoption as standard or, in the case of revision, the year of last revision.

Scope

1. This method covers the procedures for qualitative and quantitative determination of rosin (colophony) in paper and paperboard.³ The qualitative tests indicate the presence or absence of resin from rosin or rosin soap added as a sizing agent. The quantitative tests give the total rosin which consists of the natural resins in the pulp from which the paper is made plus any rosin added as sizing. Such procedures are not applicable to the determination of synthetic resins (such as the melamine and urea-formaldehyde resins used to impart wet strength properties to paper). The method is limited to rosin, which is a natural vegetable resin, the residue left after

distilling off the turpentine from the gum of pine or from the solvent extraction of pine stumps, knots and top wood with subsequent separation from the extraction solvent, turpentine or pine oil, by distillation.

QUALITATIVE TEST

Qualitative Test

2. A positive result obtained by both of the procedures described in Paragraphs (a) and (b) shall be regarded as conclusive evidence of the presence of rosin or rosin soap added as a sizing material.

(a) *Liebermann-Storch Test*.—Place about 1 g. of the paper, cut into small pieces, in a clean, dry test tube. Add 5 ml. of c.p. acetic anhydride and evaporate by boiling to about 1 ml. (*Caution*: The fumes of the anhydride are very irritating and should be burned as they leave the mouth of the test tube.) Pour the liquid residue into a clean, dry porcelain crucible and cool to room temperature. If any waxy particles separate out, filter them off on a dry filter paper. Add carefully, down the side

¹ Under the standardization procedure of the Society, this method is under the jurisdiction of the A.S.T.M. Committee D-6 on Paper and Paper Products.

For further information on this method the following references may be consulted:

C. F. Sammet, "Quantitative Determination of Rosin in Paper," *Industrial and Engineering Chemistry*, Vol. 5 p. 732, September (1913); Paper 13, No. 1, 17 (September, 1913).

E. Sutermeister and W. V. Torrey, "The Determination of Rosin in Paper," *Paper Trade Journal*, Vol. 94, No. 3, p. 33, January 21, 1932.

² Prior to adoption as standard, this method was published as tentative from 1939 to 1941.

³ For further information, see "Paper and Paperboard, Characteristics, Nomenclature and Significance of Tests," p. 78, Am. Soc. Testing Mats. (1944). (Monograph issued as separate publication.)