



Designation: D 1240 – 96

AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Methods for Rosin Acids Content of Naval Stores, Including Rosin, Tall Oil, and Related Products¹

This standard is issued under the fixed designation D 1240; 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 These test methods cover the determination of rosin acids in tall oil, tall oil fatty acid, tall oil rosin, and other naval stores products.

1.2 These test methods may not be applicable to adducts or derivatives of rosin, fatty acid, or other naval stores products.

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 1585 Test Methods for Fatty Acids Content of Naval Stores, Including Rosin, Tall Oil, and Related Products²

E 70 Test Method for pH of Aqueous Solutions with the Glass Electrode³

E 177 Practice for the Use of the Terms Precision and Bias in ASTM Test Methods⁴

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method⁴

3. Summary of Test Method

3.1 The rosin acids content is determined using either the potentiometric method or the indicator method described in Sections 6 to 17. Rosin acids are calculated as abietic acid.

4. Significance and Use

4.1 This is a major revision of Test Methods D 1240. The old refereed version, the Herrlinger-Compeau Method, employed a sodium sulfate solution extraction. It is limited in application to materials containing less than 15 % rosin, principally fatty acids. It is used little in the industry, but since

much early work is based on this test method, it is included here for reference.

4.1.1 For materials containing less than 15 % rosin, the modified Glidden procedure has gained acceptance as the method of choice over the Herrlinger-Compeau. For materials containing more than 15 % rosin the modified Wolfe Method, once part of Test Methods D 1585, is preferred. The modified Wolfe and modified Glidden procedures differ only in their details. Both methods have been combined here into a single procedure.

4.2 Rosin and tall oil are composed primarily of rosin acids and fatty acids, and, therefore, the measurement of these components is important in establishing the composition of these materials.

5. Reagents

5.1 *Purity of Reagents*—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.⁵ 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.

5.2 Unless otherwise indicated, references to water shall be understood to mean deionized or distilled water.

6. Preparation of Sample

6.1 Homogeneous liquid materials may be used without further preparation.

6.2 Nonhomogeneous liquid materials should be heated until they are homogeneous, then a portion taken for analysis.

6.3 Solid samples are subject to surface oxidation which may affect the results. Prepare the sample for analysis by chipping small pieces from a freshly exposed surface of a lump or lumps and crush to a coarse powder to facilitate weighing and solution. Prepare fresh on the same day, prior to weighing,

¹ These test methods are under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.34 on Naval Stores.

Current edition approved Jan. 10, 1996. Published March 1996. Originally published as D 1240 – 52 T. Last previous edition D 1240 – 93.

² *Annual Book of ASTM Standards*, Vol 06.03.

³ *Annual Book of ASTM Standards*, Vol 15.05.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.

⁵ *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmaceutical Convention, Inc. (USPC), Rockville, MD.