



Standard Test Methods for Fatty Acids Content of Pine Chemicals, Including Rosin, Tall Oil, and Related Products¹

This standard is issued under the fixed designation D1585; 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 the fatty acids of pine chemicals, including rosin, tall oil, and related products.

1.2 These test methods may not be applicable to adducts or derivatives of rosin or other pine chemical 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:*²

[D465 Test Methods for Acid Number of Pine Chemical Products Including Tall Oil and Other Related Products](#)

[D803 Test Methods for Testing Tall Oil](#)

[D890 Test Method for Water in Liquid Pine Chemicals](#)

[D1065 Test Method for Unsaponifiable Matter in Naval Stores, Including Rosin, Tall Oil, and Related Products](#)

[D1240 Test Methods for Rosin Acids Content of Pine Chemicals, Including Rosin, Tall Oil, and Related Products](#)

[E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods](#)

[E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method](#)

3. Summary of Test Method

3.1 The rosin acids content is determined using either the modified potentiometric Wolfe Method or the modified indica-

tor Wolfe Method described in Test Methods [D1240](#). Rosin acids are calculated as abietic acid.

3.2 The acid number is determined by either the potentiometric or the indicator method in accordance with Test Methods [D465](#).

3.3 The unsaponifiable matter is determined in accordance with the methods described in Test Method [D1065](#).

3.4 The fatty acids are calculated by two methods.

3.4.1 For materials with a fatty acid content less than 5 %, fatty acid content is calculated from the rosin acids content and the acid number.

3.4.2 For materials with a fatty acid content greater than 5 %, fatty acid content is calculated from the rosin acids and unsaponifiables content.

3.5 The same method for end point detection, either potentiometric or indicator, should be used for acid number, unsaponifiables, and rosin acids content determination, in order to avoid slight variables that might occur.

3.6 Since the fatty acids remaining in tall oil rosin, tall oil, and other pine chemical products consist of oleic acid with varying amounts of other saturated and unsaturated acids, it has become customary to calculate and report the fatty acid content as oleic acid.

4. Significance and Use

4.1 These test methods are designed to broaden the scope of the previous edition of these test methods by the inclusion of tall oil as a test material. Test Methods [D803](#) currently includes methods for the determination of the rosin acid and fatty acid content of crude tall oil. Test Methods [D803](#) references Test Method [D1585](#).

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

5. Purity of Reagents

5.1 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

¹ These test methods are under the jurisdiction of ASTM Committee [D01](#) on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee [D01.34](#) on Pine Chemicals and Hydrocarbon Resins.

Current edition approved Dec. 1, 2015. Published December 2015. Originally approved in 1958. Last previous edition approved in 2011 as [D1585 – 96](#) (2011). DOI: 10.1520/D1585-15.

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.