



Designation: D464 – 05

Standard Test Methods for Saponification Number of Naval Store Products Including Tall Oil and Other Related Products¹

This standard is issued under the fixed designation D464; 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 saponification number of tall oil and products obtained by the fractionation of tall oil such as rosin, fatty acids and distilled tall oil as defined in Terminology D804. These test methods are also applicable to gum and wood rosin. Two test methods are covered as follows:

- 1.1.1 Test method using a potentiometric method, and
- 1.1.2 Test method using an internal indicator method.

1.2 The potentiometric method is suitable for use with both light- and dark-colored test samples. It should be considered the referee method. The internal indicator method is suitable for use only with light- and medium-colored test samples. It should be considered the alternate method.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 *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

D803 Test Methods for Testing Tall Oil

D804 Terminology Relating to Naval Stores, Including Tall Oil and Related Products

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 Naval Stores.

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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.

E70 Test Method for pH of Aqueous Solutions With the Glass Electrode

3. Significance and Use

3.1 These test methods are designed to broaden the scope of the earlier editions of the test method by the inclusion of tall oil and tall oil derived products as test materials and is referenced in Test Methods D803.

3.2 The saponification number is an important property of tall oil and the products obtained by the fractionation of tall oil. It is the test method widely used to determine the total acid content, both free and combined, of these products.

3.3 The potentiometric test method should be used when the most reproducible results are required.

4. Preparation of Sample

4.1 If the sample for analysis is rosin, it shall consist of small pieces of rosin chipped from a freshly exposed part of a lump or lumps, and thereafter crushed to facilitate weighing and dissolution. Prepare the sample the same day on which the test is begun in order to avoid changes in properties due to surface oxidation. Changes are very pronounced on ground rosin that has a large surface area exposed to air. Existing rosin dust and powdered rosin must not be used.

4.2 If the sample is a nonhomogeneous liquid, heat the entire sample in a closed container fitted with a capillary vent or the equivalent. Some kind of agitation, even if done occasionally by hand, saves much time. Heat by immersion in open steam or hot water bath to avoid overheating. When dealing with crystallized rosin, a higher temperature of approximately 160°C may be needed. Remove samples for testing only when the entire sample is homogeneous and has been well stirred.

5. Purity of Reagents and Water

5.1 Unless otherwise indicated, it is intended that all reagents shall conform to the specifications established by the Committee on Analytical Reagents of the American Chemical