



Standard Test Methods for Sampling and Testing Pine Oils¹

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1. Scope

1.1 These test methods cover procedures for sampling and testing pine oils, and are applicable to both natural pine oils derived from pine stumps either by the steam and solvent process or by destructive distillation, and also to synthetic pine oils obtained by the chemical hydration of terpene hydrocarbons.

1.2 The procedures given in these test methods appear in the following order:

	Section
Sampling	4
Appearance	5
Color	6
Specific Gravity	7
Refractive Index	8
Composition	9
Moisture	10

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 268 Guide for Sampling and Testing Volatile Solvents and Chemical Intermediates for Use in Paint and Related Coatings and Materials²
- D 803 Test Methods for Testing Tall Oil³
- D 890 Test Method for Water in Liquid Naval Stores³
- D 3009 Test Method for Composition of Turpentine by Gas Chromatography³
- E 300 Practice for Sampling Industrial Chemicals⁴

3. Significance and Use

3.1 The testing procedures described in these test methods have been in use for many years and emphasize the physical properties of pine oil rather than its chemical composition. Gas

chromatography is the accepted method for determining the chemical composition of pine oil. An ASTM test method based on capillary gas chromatography can be used for the major components of pine oil. A capillary GC procedure is currently being written which is suitable for both major and minor components.

4. Sampling

4.1 Sample the material in accordance with the procedure described in Guide D 268 and Practice E 300.

5. Appearance

5.1 Examine a portion of the sample after agitation to determine its clarity and freedom from foreign matter and separated water.

6. Color

6.1 Compare the color of the sample in any suitable or designated apparatus with the accepted or specified color standard.

7. Specific Gravity

7.1 Determine the specific gravity at 15.6/15.6°C by any convenient method, reporting the value to the nearest 0.0005. (A pycnometer or specific gravity balance is recommended. A hydrometer should not be used, on account of errors caused by surface tension on the hydrometer stem.) Correct determinations made at any other temperature, using apparatus standardized at 15.6°C by adding to or subtracting from the observed reading 0.00080 for each degree Celsius that the temperature of the liquid is above or below 15.6°C.

8. Refractive Index

8.1 Determine the refractive index with an instrument having a resolution of ± 0.0001 at 20°C, if possible. If tested at any other temperature, correct the reading obtained to 20°C by adding or subtracting 0.00045 for each degree Celsius that the temperature at which the determination was made is, respectively, above or below 20°C.

9. Composition

9.1 Determine the component concentration of pine oil using gas chromatography. The referenced method employs packed column technology (see Test Method D 3009). An

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² Annual Book of ASTM Standards, Vol 06.04.

³ Annual Book of ASTM Standards, Vol 06.03.

⁴ Annual Book of ASTM Standards, Vol 15.05.