



Standard Test Method for Kauri-Butanol Value of Hydrocarbon Solvents¹

This standard is issued under the fixed designation D 1133; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope

1.1 This test method covers the determination of the relative solvent power of hydrocarbon solvents used in paint and lacquer formulations. This test method is suitable for use with solvents having an initial boiling point over 40°C and a dry point under 300°C when determined in accordance with the procedures in Note 1.

NOTE 1—Test Method D 86 is used to determine the initial boiling point and dry point for mineral spirits and similar petroleum solvents. Test Method D 1078 is used for pure compounds and narrow boiling range cuts.

1.2 *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.*

1.3 For specific hazard information and guidance, consult the supplier's Material Safety Data Sheet.

2. Referenced Documents

2.1 ASTM Standards:

- D 86 Test Method for Distillation of Petroleum Products²
- D 304 Specification for n-Butyl Alcohol (Butanol)³
- D 611 Test Methods for Aniline Point and Mixed Aniline Point of Petroleum Products and Hydrocarbon Solvents²
- D 841 Specification for Nitration Grade Toluene³
- D 1078 Test Method for Distillation Range of Volatile Organic Liquids³

3. Terminology

3.1 Definitions:

3.1.1 *kauri-butanol value*—of a solvent, the volume in millilitres at 25°C of the solvent, corrected to a defined standard, required to produce a defined degree of turbidity when added to 20 g of a standard solution of kauri resin in normal butyl alcohol.

3.1.1.1 *Discussion*—The kauri resin solution is standardized

¹ This test method is under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.35 on Solvents, Plasticizers, and Chemical Intermediates.

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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 06.04.

against toluene, which has an assigned value of 105, and a mixture of 75 % *n*-heptane and 25 % toluene on a volume basis, which has an assigned value of 40.

4. Significance and Use

4.1 The kauri-butanol value is used as a measure of solvent power of hydrocarbon solvents. High kauri-butanol values indicate relatively strong solvency.

5. Apparatus

5.1 *Water Bath*, a clear-glass vessel, maintained at 25 ± 1°C. Alternatively, a room maintained at 25 ± 1°C may be used.

5.2 *Volumetric Flask*, 200-mL capacity.

5.3 *Erlenmeyer Flask*, 250-mL capacity.

5.4 *Buret*, 50-mL capacity.

5.5 *Print Specimen*—A sheet of white paper having on it black 10 or 12 point print, No. 31 Bruce old style type.

NOTE 2—Text in this published standard is satisfactory to use as print specimen.

6. Reagents

6.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests unless otherwise specified. 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.⁴ 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.

6.2 *Kauri-Butanol Solution*⁵—Place in a 3-L flask 400 g of clean, pale, bold kauri resin of Grade XXXX, XXX, or XX ground to pea-size or smaller. Add, while agitating vigorously,

⁴ *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. Pharmacopeial Convention, Inc. (USPC), Rockville, MD.

⁵ The sole source of supply of prepared kauri-butanol solutions known to the committee at this time is the Chemical Service Laboratories, 5543 Dyer St., Dallas, TX 75206. If you are aware of alternative suppliers, please provide this information to ASTM Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee,¹ which you may attend.