



Designation: D4140 – 24

Standard Guide for Determining Volatile and Nonvolatile Content of Driers, Naval Stores, and Solvents¹

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1. Scope

1.1 This guide is intended to aid in the selection of the proper ASTM test method for determining the volatile and nonvolatile content of driers, drying oils, naval stores, and solvents.

NOTE 1—Test methods for determining the composition of the volatile fraction are not covered by this guide.

1.2 The test methods included are as follows:

Standard	Section	ASTM Designation
Driers	5.1	D1644
Naval stores	5.2	D233 D889 D1353
Solvents	5.3	

1.3 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*²

D16 Terminology for Paint, Related Coatings, Materials, and Applications

D233 Test Methods of Sampling and Testing Turpentine

D804 Terminology Relating to Pine Chemicals, Including Tall Oil and Related Products

D889 Test Method for Volatile Oil in Rosin

D1353 Test Method for Nonvolatile Matter in Volatile Solvents for Use in Paint, Varnish, Lacquer, and Related Products

D1644 Test Methods for Nonvolatile Content of Varnishes

¹ This guide is under the jurisdiction of ASTM Committee D01 on Paint and Related Coatings, Materials, and Applications and is the direct responsibility of Subcommittee D01.21 on Chemical Analysis of Paints and Paint Materials.

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² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at www.astm.org/contact. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

3. Terminology

3.1 *Definitions:*

3.1.1 *drier, n*—an additive that accelerates the drying of an oil, paint, printing ink, or varnish (from Terminology D16).

3.1.1.1 *Discussion*—Driers are usually metallic compositions and are available in both solid and liquid forms.

3.1.2 *drying oil, n*—an oil that possesses to a marked degree the property of readily taking up oxygen from wood chiefly of the pine species (Genus *Pinus*) (from Terminology D16).

3.1.3 *naval stores, n*—chemically reactive oils, resins, tars, and pitches derived from the oleoresin contained in, exuded by, or extracted from wood chiefly of the pine species (Genus *Pinus*) (from Terminology D804).

4. Significance and Use

4.1 The nonvolatile content of raw materials may be used to determine the total nonvolatile content (solids) of paint and related coatings. Such information may be useful to coatings producers and users for the determination of the total solids available for film formation and for the estimation of the volatile organic content.

5. Procedure

5.1 *Driers*—Most liquid driers for use in paints and varnishes are sold as solutions, and therefore usually contain significant amounts of solvent. Use Method A in Test Methods D1644 to determine the nonvolatile content.

5.2 *Naval Stores:*

5.2.1 *Rosin*—Test Method D889 covers the determination of the volatile oil content of rosin or similar material. The oil may consist of naturally occurring terpene oil or of foreign nonterpene oil resulting from incomplete removal of solvent used to extract the resin from wood or still wastes.

5.2.2 *Turpentine*—Test Methods D233, Sections 20 through 22, cover the determination of the evaporation residue of turpentine.

5.2.3 *Other Naval Stores*—Procedures for determination of volatile and nonvolatile content of naval stores not specified in 5.2.1 through 5.2.2 should be agreed upon between the producer and the user.