Designation: D4209 – 07 (Reapproved 2013)

Standard Practice for Determining Volatile and Nonvolatile Content of Cellulosics, Emulsions, Resin Solutions, Shellac, and Varnishes[1]

This standard is issued under the fixed designation D4209; 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 This practice is intended to serve as a guide to the selection of the proper ASTM test method for determining the volatile and nonvolatile content of cellulosics, emulsions, resin solutions, shellac, and varnishes.

NOTE 1—Standards for determining the composition of the volatile fraction are not covered by this practice.

1.2 The standards referenced in the practice are as follows:

Classification	Section	ASTM Standard
Cellulosics	5.1	D871
		D914
		D1347
Emulsions	5.2	D2369
Resin Solutions	5.3	D1259
		D1490
Shellac	5.4	D29
		D1650
Varnishes	5.5	D115
		D1644

1.3 The values stated in SI units are to be regarded as the standard. The values given in parentheses are for information only.

2. Referenced Documents

2.1 *ASTM Standards:*[2]

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

D29 Test Methods for Sampling and Testing Lac Resins (Withdrawn 2005)[3]

D115 Test Methods for Testing Solvent Containing Varnishes Used for Electrical Insulation

D360 Specification for Shellac Varnishes

D871 Test Methods of Testing Cellulose Acetate

D914 Test Methods for Ethylcellulose

D1259 Test Methods for Nonvolatile Content of Resin Solutions

D1347 Test Methods for Methylcellulose (Withdrawn 2003)[3]

D1490 Test Method for Nonvolatile Content of Urea-Formaldehyde Resin Solutions

D1644 Test Methods for Nonvolatile Content of Varnishes

D1650 Test Methods for Sampling and Testing Shellac Varnish (Withdrawn 1997)[3]

D2369 Test Method for Volatile Content of Coatings

D4758 Test Method for Nonvolatile Content of Latexes (Withdrawn 2007)[3]

3. Terminology

3.1 *Definitions:*

3.1.1 The definitions contained in Terminology D16 are applicable to this practice.

3.1.2 *cellulose ester, n*—derivatives of cellulose in which one or more of the hydroxyl hydrogens have been replaced by acyl groups.

3.1.3 *cellulose ether, n*—derivatives of cellulose in which one or more of the hydroxyl hydrogens have been replaced by alkyl groups.

3.1.4 *cellulose nitrate (nitrocellulose), n*—derivatives of cellulose in which one or more of the hydroxyl hydrogens have been replaced by nitrate groups.

3.1.5 *emulsion vehicle, n*—an emulsion of binder in water. The binder may be oil, oleoresinous varnish, resin, or other emulsifiable liquid.

3.1.6 *latex, n*—a stable aqueous dispersion of synthetic resin, produced by emulsion polymerization, as the principal constituent of the binder.

3.1.7 *shellac varnish, n*—a solution or "cut" of a specified type and grade of dry lac resin in a suitable alcohol.

3.1.8 *varnish, n*—a liquid composition that is converted by oxidation or thermal cross-linking to a transparent or translucent solid film after application as a thin layer.

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

[1] This practice 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 service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] The last approved version of this historical standard is referenced on www.astm.org.

*A Summary of Changes section appears at the end of this standard