



Designation: D7767 – 11 (Reapproved 2024)

Standard Test Method to Measure Volatiles from Radiation Curable Acrylate Monomers, Oligomers, and Blends and Thin Coatings Made from Them¹

This standard is issued under the fixed designation D7767; 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 test method describes a means to determine the percentage of processing, potential, and total volatiles from radiation curable acrylate monomers, oligomers, and blends. The results can be used to estimate the volatiles from thin radiation curable coatings that cannot otherwise be measured with the restriction that those coatings are not subjected to a pre-exposure water or solvent drying step. It also provides a means to determine the volatiles of thin radiation curable coatings in the absence of known interferences such as pigments in inks.

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

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. 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

1.4 *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.*

¹ This test method 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. Referenced Documents

2.1 ASTM Standards:²

D5403 Test Methods for Volatile Content of Radiation Curable Materials

E145 Specification for Gravity-Convection and Forced-Ventilation Ovens

E177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 Other Document:³

EPA Method 24 Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings

3. Terminology

3.1 Definitions:

3.1.1 *cure, n*—conversion of a coating from its application state to its final use state measured by tests generally related to end use performance and mutually agreeable to supplier and purchaser.

3.1.2 *electron beam (EB) curing, n*—conversion of a coating from its application state to its final use state by means of a mechanism initiated by electron impingement generated by equipment designed for that purpose.

3.1.3 *pigment, n*—an insoluble substance added to a formulation to modify the visual appearance of a coating made from the formulation.

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 Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, <http://www.access.gpo.gov>.