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Standard Test Method for Volatile Content of Sheet-Fed and Coldset Web Offset Printing Inks[1]

This standard is issued under the fixed designation D6419; 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 procedure for determination of the weight percent volatile content of sheet-fed and coldset web offset printing inks. Test specimens are heated at 110° ± 1°C for 60 min.

NOTE 1—Coldset web offset printing is often (also) referred to as non-heatset web offset printing.

1.2 This test method is also applicable to sheet-fed and coldset web offset printing ink vehicles.

NOTE 2—Vehicle is the liquid portion of the printing ink. Any substance that is dissolved in the liquid portion of the ink is a part of the vehicle.

1.3 This test method is not applicable to ultra-violet (UV) or electron beam cured materials, which must be cured by exposure to UV light or an electron beam as part of the test for volatile content.

1.4 This test method is based on Test Method D2369, in which the allowable ranges are ±0.1g for specimen weight and ±5°C for oven temperature. Interlaboratory studies have shown that specimen weight and oven temperature must both be more tightly controlled in order to improve the precision of test results for sheet-fed and coldset web-offset inks. Such inks typically contain a wide range of high-boiling hydrocarbons and often have a volatile content below 25 %.

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

1.6 *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. For a specific hazard statement see 7.5.1.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

D2369 Test Method for Volatile Content of Coatings

D362 Specification for Industrial Grade Toluene

E145 Specification for Gravity-Convection and Forced-Ventilation Ovens

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

2.2 *Other Standards:*[3]

EPA Reference Method 24 ~~-~~ — Determination of Volatile Matter Content, Water Content, Density, Volume Solids, and Weight Solids of Surface Coatings[4]

3. Summary of Test Method

3.1 A specimen size of 0.300 ± 0.001 g is weighed into an aluminum foil dish, dispersed in 3 mL of toluene, and heated in an oven at 110 ± 1°C for 60 min. The percent volatile is calculated from the loss in weight.

4. Significance and Use

4.1 This test method is the procedure of choice for determining volatile content of sheet-fed and coldset web offset inks. This

[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 D01.56 on Printing Inks.

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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] Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401 or Brezinski, J. J., ed., *Determination of Volatile Organic Compound (VOC) Content in Paints, Inks, and Related Coating Products,* MNL 4, ASTM, 1993.~~

[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.

[4] Brezinski, J. J., ed., "Determination of Volatile Organic Compound (VOC) Content in Paints, Inks, and Related Coating Products," MNL 4, ASTM, 1993.