



Designation: D305 – 84(Reapproved 2008)

## Standard Test Method for Solvent-Extractable Material in Black Pigments<sup>1</sup>

This standard is issued under the fixed designation D305; 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 ( $\epsilon$ ) 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 solvent-extractable material in black pigments such as carbon black, lampblack, and bone black.

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

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.*

### 2. Referenced Documents

2.1 *ASTM Standards*:<sup>2</sup>  
[D329 Specification for Acetone](#)

### 3. Significance and Use

3.1 This test method is used by black pigment producers and users for product acceptance.

### 4. Apparatus

4.1 *Extraction Apparatus*, consisting of a flask, siphon cup, and a condenser similar to the apparatus shown in either Fig. 1 or Fig. 2.

NOTE 1—A Siphlet apparatus may be used as an alternative.

4.2 *Extraction Thimbles*—The thimble must be made of greaseless paper and be of correct size to fill the selected apparatus.

<sup>1</sup> 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 D01.31 on Pigment Specifications.

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<sup>2</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

NOTE 2—The recommended thimble size for each of the apparatus shown in Fig. 1 is listed below:

	Fig. 1	Fig. 2
Height	70 mm	62 mm
Inside diameter	28 mm	22 mm
Outside diameter	30 mm	24 mm

4.3 The thimbles are available in various heights and widths with two thickness levels, single thickness or double thickness. Single-thickness thimbles are recommended for this extraction procedure.

### 5. Reagents and Material

5.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. 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.<sup>3</sup> 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.

5.2 *Solvent*—Acetone and benzene are the most commonly used solvents (see Specification D329); however, other solvents may be used as agreed upon.

5.3 *Glass Wool*.

### 6. Procedure

6.1 Weight approximately 10 g of pigment (moisture-free) into a weighed thimble and record the weight to 0.1 g. For pigments with high apparent density (bone black, iron oxides, etc.) a 40-g sample is recommended. Plug the open end of the thimble with glass wool and place in the siphon cup. Add 200 to 250 mL of the solvent to the previously dried flask.

6.2 When using acetone as the extraction solvent, extract continuously for 4 h, heating at a rate such that the time required to fill and empty the siphon cup will not exceed 8 min. With other solvents extract for 16 h.

<sup>3</sup> *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.