



Designation: D209 – 81 (Reapproved 2023)

Standard Specification for Lampblack Pigment¹

This standard is issued under the fixed designation D209; 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.

This standard has been approved for use by agencies of the U.S. Department of Defense.

1. Scope

1.1 This specification covers the pigment commercially known as lampblack. The pigment may be purchased in the dry form or as a paste in oil.

1.2 *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

- D185 Test Methods for Coarse Particles in Pigments
- D387 Test Method for Color and Strength of Chromatic Pigments with a Mechanical Muller
- D1208 Test Methods for Common Properties of Certain Pigments

3. Composition and Properties

3.1 *Dry Pigment*—The pigment shall be made by burning oils or tars in such a manner as to form a deposit of carbon or soot. It shall be high grade in every respect and shall be free from oil, greasy matter, and admixture of any other substance. The pigment shall conform to the following requirements:

Ash, max, %	0.5
Acetone extract, max, %	1.0
Moisture and other volatile matter, max, %	3.0
Coarse particles, (total residue retained on a 45 µm (No. 325) sieve), max, %	0.5
Tone when diluted with zinc oxide	clear-blue-gray

3.2 *Paste in Oil*—The paste in oil shall be made by thoroughly grinding the specified pigment with linseed oil. As

received it shall not be caked in the container, and shall break up readily in oil to form a smooth paint of brushing consistency. It shall mix readily in all proportions, without curdling, with linseed oil, turpentine, or volatile petroleum spirits, or any mixture of these substances. The paste shall conform to the following requirements:

Pigment, min, %	25
Linseed oil, max, %	75
Moisture and other volatile matter, max, %	0.7
Coarse particles and skins (total residue retained on a 45-µm (No. 325) sieve), max, % of the dry pigment	1.0

3.3 The mass color and character of the tint and the tinting strength formed by a mixture with a white pigment shall be within mutually agreed- upon limits of a standard acceptable to both the purchaser and the seller.

4. Sampling

4.1 Two samples shall be taken at random from different packages from each lot, batch, day's pack, or other unit of production in a shipment. When no markings distinguishing between units of production appear, samples shall be taken from different packages in the ratio of two samples for each 10 000 lb (4540 kg), except that for shipments of less than 10 000 lb two samples shall be taken. At the option of the purchaser, the samples may be tested separately or after blending in equal quantities the samples from the same production unit to form a composite sample.

5. Test Methods

5.1 Tests shall be conducted in accordance with the following test methods. Test procedures not covered by ASTM test methods shall be mutually agreed upon between the purchaser and the seller.

5.2 *Coarse Particles*—Test Methods D185.

5.3 *Pigment, Linseed Oil, and Moisture and Other Volatile Matter in Paste in Oil*—Test Methods D1208.

5.4 *Mass Color and Tinting Strength*—Test Method D387.

6. Keywords

6.1 carbon; lampblack; linseed oil; pigment; soot

¹ This specification 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.

Current edition approved June 1, 2023. Published June 2023. Originally approved in 1924. Last previous edition approved in 2019 as D209 – 81 (2019). DOI: 10.1520/D0209-81R23.

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.