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AMERICAN SOCIETY FOR TESTING AND MATERIALS
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Standard Test Methods for Chemical Analysis of Zinc Dust (Metallic Zinc Powder)¹

This standard is issued under the fixed designation D 521; 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 These test methods cover procedures for the chemical analysis of metallic zinc powder in the form commercially known as zinc dust for use as a pigment in paints.

1.2 The analytical procedures appear in the following order:

	Sections
Moisture and Other Volatile Matter	7
Coarse Particles	8
Matter Soluble in Hexane	9 and 10
Total Zinc	11 and 12
Metallic Zinc	13 and 14
Zinc Oxide	15
Calcium	16 and 17
Lead	18
Iron	19
Cadmium	20
Chlorine	21 and 22
Sulfur	23 and 24

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:

- B 214 Test Method for Sieve Analysis of Metal Powders²
- D 185 Test Methods for Coarse Particles in Pigments, Pastes, and Paints³
- D 280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments³
- D 1193 Specification for Reagent Water⁴
- E 40 Test Methods for Chemical Analysis of Slab Zinc (Spelter)⁵
- E 68 Method for Polarographic Determination of Lead and Cadmium in Zinc⁶

3. Significance and Use

3.1 These test methods compile procedures which can be used to check the composition of purity of metallic zinc powder. This information is useful to both the formulator and users.

4. Treatment of Sample

4.1 Store the laboratory sample in a tightly stoppered bottle to protect it from oxidation. Mix the whole sample thoroughly before taking portions for analysis.

5. Purity of Reagents

5.1 *Purity of Reagents*—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.⁷ 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 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water conforming to Type II of Specification D 1193.

6. Precision

6.1 Precision statements have not been established.

MOISTURE AND OTHER VOLATILE MATTER

7. Procedure

7.1 Determine moisture and other volatile matter in accordance with Method A of Test Methods D 280, except heat the sample for only 1 h.

COARSE PARTICLES

8. Procedure

8.1 Determine the percent of coarse particles in the pigment in accordance with Test Methods D 185 or B 214.

¹ These test methods are under the jurisdiction of ASTM Committee D-1 on Paint and Related Coatings, Materials, and Applications and are the direct responsibility of Subcommittee D01.31 on Pigment Specifications.

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² *Annual Book of ASTM Standards*, Vol 02.05.

³ *Annual Book of ASTM Standards*, Vol 06.03.

⁴ *Annual Book of ASTM Standards*, Vol 11.01.

⁵ *Annual Book of ASTM Standards*, Vol 03.05.

⁶ Discontinued—See 1979 *Annual Book of ASTM Standards*, Part 12.

⁷ *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.