



Designation: D1135 – 86 (Reapproved 2020)

Standard Test Methods for Chemical Analysis of Blue Pigments¹

This standard is issued under the fixed designation D1135; 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 These test methods cover procedures for the chemical analysis of blue pigments known commercially as iron blue, copper phthalocyanine blue, and ultramarine blue.

1.2 The analytical procedures appear in the following order:

	Sections
IRON BLUE PIGMENTS	
Identification	6
Moisture by the Brabender Moisture Tester	7 and 8
Moisture by Toluene Distillation	9
Water-Soluble Matter by Extraction	10
Water-Soluble Salts by Electrical Conductivity	11
Detection of Acid-Insoluble Extenders	12 and 13
Detection of Acid-Soluble Extenders	14 to 17
Detection of Organic Colors and Lakes	18
COPPER PHTHALOCYANINE BLUE PIGMENTS	
Identification	19
Moisture and Other Volatile Matter	20
Detection of Basic Dye Derivatives	21
Detection of Other Organic Coloring Matter	22
Detection of Ultramarine Blue	23
Detection of Iron Blue	24
ULTRAMARINE BLUE	
Identification	25
Moisture and Other Volatile Matter	26
Water-Soluble Matter	27
Detection of Basic Dye Derivatives	28
Detection of Other Organic Coloring Matter	29

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

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

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1.5 *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

- D280 Test Methods for Hygroscopic Moisture (and Other Matter Volatile Under the Test Conditions) in Pigments
- D1193 Specification for Reagent Water
- D1208 Test Methods for Common Properties of Certain Pigments
- D2448 Test Method for Water-Soluble Salts in Pigments by Measuring the Specific Resistance of the Leachate of the Pigment
- E11 Specification for Woven Wire Test Sieve Cloth and Test Sieves

3. Significance and Use

3.1 These test methods are suitable for determining if impurities are present and establishing that the required pigments are present. These test methods may be used for manufacturing quality control.

4. Purity of Reagents and Water

4.1 *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.³ Other grades may be used, provided it is first ascertained that the

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 *ACS Reagent Chemicals, Specifications and Procedures for Reagents and Standard-Grade Reference Materials*, 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.