



Designation: D4441 – 20

Standard Specification for Aqueous Dispersions of Polytetrafluoroethylene¹

This standard is issued under the fixed designation D4441; 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 specification covers aqueous dispersions of polytetrafluoroethylene (PTFE) resins. These resins are homopolymers of tetrafluoroethylene, or in some cases modified homopolymers containing not more than 1 % by weight of other fluoromonomers.

1.1.1 The dispersion is usually stabilized by one or more surfactants. Other non-PTFE materials may be present in total at 5 % or less by weight for special purposes.

1.1.2 This specification is for virgin material only and does not address recycled material as it is not appropriate for dispersions.

1.2 This specification is used to determine if a shipment, lot, or container of PTFE dispersion is suitable for its intended use. It covers only aqueous dispersions of polytetrafluoroethylene. It does not cover PTFE copolymers or filled dispersions. This specification includes test methods for both aqueous dispersion and the PTFE in the dispersion.

NOTE 1—Uses for the PTFE dispersion covered by this specification include, but are not limited to, casting of their films, impregnation of mechanical packings and other materials, surface coatings on various substrates, combined impregnation and coating of fibrous materials, and co-coagulation with other materials for subsequent processing into films, sheets, rods, and tubes.

NOTE 2—Information in this specification is technically equivalent to related information in ISO 20568-1 and ISO 20568-2.

1.3 The values stated in SI units as detailed in **IEEE/ASTM SI-10** are to be regarded as standard. The values given in parentheses are for information only.

1.4 The following precautionary caveat pertains only to the test method portions of this specification. *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.* Specific precautionary information is given in Notes 5 and 6.

¹ This specification is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section D20.15.12).

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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

D883 Terminology Relating to Plastics

D3892 Practice for Packaging/Packing of Plastics

D4464 Test Method for Particle Size Distribution of Catalytic Materials by Laser Light Scattering

D4591 Test Method for Determining Temperatures and Heats of Transitions of Fluoropolymers by Differential Scanning Calorimetry

D4894 Specification for Polytetrafluoroethylene (PTFE) Granular Molding and Ram Extrusion Materials³

D4895 Specification for Polytetrafluoroethylene (PTFE) Resin Produced From Dispersion³

E70 Test Method for pH of Aqueous Solutions With the Glass Electrode

IEEE/ASTM SI-10 Use of the International System of Units (SI): The Modern Metric System

2.2 ISO Standards:⁴

ISO 20568-1 Plastics—Fluoropolymer Dispersions and Molding and Extrusion Materials—Part 1: Designation and Specification

ISO 20568-2 Plastics—Fluoropolymer Dispersions and Molding and Extrusion Materials—Part 2: Preparation of Test Specimens and Determination of Properties

3. Terminology

3.1 Definitions:

3.1.1 *General*—The terminology given in Terminology D883 is applicable to this specification.

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 Specifications for other forms of polytetrafluoroethylene may be found in Specifications D4894 and D4895.

⁴ Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.

*A Summary of Changes section appears at the end of this standard