



Designation: D6040 – 18 (Reapproved 2023)

Standard Guide to Standard Test Methods for Unsintered Polytetrafluoroethylene (PTFE) Extruded Film or Tape¹

This standard is issued under the fixed designation D6040; 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 guide identifies test methods to use in evaluating unsintered extruded films or tapes manufactured from polytetrafluoroethylene.

1.2 The values stated in SI units as detailed in [IEEE/ASTM SI 10](#), are to be regarded as standard.

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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

NOTE 1—This test method is equivalent to ISO 12086-2:2006 in the measurement of tensile properties, specific gravity, and dielectric constant. These are in ISO 12086-2:2006, sections 8.2.2, 10.6 and 8.1.1. It is not equivalent to ISO 12086-2:2006 in any other measurement or section.

1.4 *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

[D149](#) Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies

[D150](#) Test Methods for AC Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation

[D257](#) Test Methods for DC Resistance or Conductance of Insulating Materials

[D374/D374M](#) Test Methods for Thickness of Solid Electrical Insulation

[D792](#) Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement

[D882](#) Test Method for Tensile Properties of Thin Plastic Sheeting

[D883](#) Terminology Relating to Plastics

[D1711](#) Terminology Relating to Electrical Insulation

[D3776/D3776M](#) Test Methods for Mass Per Unit Area (Weight) of Fabric

[F335](#) Terminology Relating to Electrostatic Imaging (Withdrawn 2017)³

[F412](#) Terminology Relating to Plastic Piping Systems

[IEEE/ASTM SI 10](#) Standard for Use of the International System of Units (SI): The Modern Metric System

2.2 ISO Standard:

[ISO 12086-2:2006](#) Plastics—Fluoropolymer Dispersions and Moulding and Extrusion Materials—Part 2: Preparation of Test Specimens and Determination of Properties⁴

3. Terminology

3.1 Definitions:

3.1.1 Definitions are in accordance with Test Methods [D257](#) and Terminologies [D883](#) and [D1711](#), unless otherwise specified.

3.1.2 *apparent density, n* —the weight per unit volume of a material including voids inherent in the material as tested, see Terminology [F412](#).

3.1.3 *lot, n* —one production run, or uniform blend of two or more production runs.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *film, n* —full-width material received as finished film.

3.2.2 *tape, n* —material that has been slit from the finished film.

4. Test Specimens

4.1 The number of test specimens shall be in accordance with the requirements of the individual test methods.

¹ This guide is under the jurisdiction of ASTM Committee [D20](#) on Plastics and is the direct responsibility of Subcommittee [D20.15](#) on Thermoplastic Materials.

Current edition approved Nov. 1, 2023. Published November 2023. Originally approved in 1996. Last previous edition approved in 2018 as D6040 - 18. DOI: 10.1520/D6040-18R23.

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 The last approved version of this historical standard is referenced on www.astm.org.

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