



# Standard Guide to Standard Test Methods for Unsintered Polytetrafluoroethylene (PTFE) Extruded Film or Tape<sup>1</sup>

This standard is issued under the fixed designation D 6040; 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 ( $\epsilon$ ) 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 and are to be regarded as the standard. The values given in parentheses are for information only.

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.*

NOTE 1—There is no ISO standard that covers all of the information included in this guide. A few of these test methods are mentioned in ISO 12086-2:1995.

## 2. Referenced Documents

### 2.1 ASTM Standards:

- D 149 Test Methods for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies<sup>2</sup>
- D 150 Test Methods for A-C Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulating Materials<sup>2</sup>
- D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials<sup>2</sup>
- D 374 Test Methods for Thickness of Solid Electrical Insulation<sup>2</sup>
- D 792 Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement<sup>3</sup>
- D 882 Test Methods for Tensile Properties of Thin Plastic Sheeting<sup>3</sup>
- D 883 Terminology Relating to Plastics<sup>3</sup>
- D 1711 Terminology Relating to Electrical Insulation<sup>2</sup>
- D 2288 Test Method for Weight Loss of Plasticizers on Heating<sup>2</sup>
- D 3776 Test Methods for Mass per Unit Area (Weight) of Woven Fabric<sup>4</sup>

- F 335 Terminology Related to Electrostatic Copying<sup>5</sup>
- F 412 Terminology Related to Plastic Piping Systems<sup>6</sup>

### 2.2 ISO Standard:

- ISO 12086-2:1995 Plastics—Fluoropolymer Dispersions and Moulding and Extrusion Materials—Part 2: Preparation of Test Specimens and Determination of Properties<sup>7</sup>

## 3. Terminology

3.1 *Definitions:* Definitions are in accordance with Test Methods D 257 and Terminologies D 883 and D 1711, unless otherwise specified.

3.1.1 *apparent density, n*—the weight per unit volume of a material including voids inherent in the material as tested, see Terminology F 412.

### 3.2 Definitions of Terms Specific to This Standard:

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

3.2.2 *lot, n*—all tapes that are part of one manufacturer's production made from the same nominal raw material under essentially the same conditions and designed to meet the same specifications.

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

3.2.4 *volume resistivity, n*—the volume resistance (in ohm-centimetres) between opposite faces of a material where the values are obtained by the measure of resistance to electrical current between electrodes placed in contact with the opposing surfaces of the sample (see Terminology F 335).

## 4. Test Specimens

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

## 5. Conditioning

5.1 Condition the tape for 4 h and conduct tests at the standard laboratory temperature of  $23 \pm 2^\circ\text{C}$  ( $73.4 \pm 3.6^\circ\text{F}$ ), unless otherwise specified in the test methods or required in a specification. Since the tape or film does not absorb water, the maintenance of constant humidity during testing is not important.

<sup>1</sup> This guide is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials. Current edition approved Dec. 10, 1996. Published February 1997.

<sup>2</sup> Annual Book of ASTM Standards, Vol 10.01.

<sup>3</sup> Annual Book of ASTM Standards, Vol 08.01.

<sup>4</sup> Annual Book of ASTM Standards, Vol 07.02.

<sup>5</sup> Annual Book of ASTM Standards, Vol 15.09.

<sup>6</sup> Annual Book of ASTM Standards, Vol 08.04.

<sup>7</sup> Available from American National Standards Institute, 11 W. 42nd St., 13th Floor, New York, NY 10036.