



Designation: D7211 – 23

Standard Specification for Parts Machined from Polychlorotrifluoroethylene (PCTFE) and Intended for General Use¹

This standard is issued under the fixed designation D7211; 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 is intended to be a means of calling out finished machined parts ready for general use.

1.2 This specification establishes requirements for parts machined from polychlorotrifluoroethylene (PCTFE) semifinished parts.

1.3 For aerospace grade, machined PCTFE parts, use Specification **D7194**.

NOTE 1—Quick-quenched PCTFE will potentially exhibit dimensional relaxation in the vicinity of $T_g = 55^\circ\text{C}$ (131°F).

NOTE 2—Although no recommendations are made regarding the limiting upper use temperature of PCTFE, the heat deflection temperature of PCTFE as determined by Test Method **D648** is 126°C (259°F).

1.4 The values stated in SI units are to be regarded as standard. The values in parentheses are for information only.

1.5 The following precautionary caveat pertains only to the test methods portion, Section 11, 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, health, and environmental practices and determine the applicability of regulatory limitations prior to use.*

NOTE 3—There is no known ISO equivalent to this standard.

1.6 *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.*

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.

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2. Referenced Documents

2.1 *ASTM Standards*:²

- D618** Practice for Conditioning Plastics for Testing
- D648** Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position
- D792** Test Methods for Density and Specific Gravity (Relative Density) of Plastics by Displacement
- D883** Terminology Relating to Plastics
- D1430** Classification System for Polychlorotrifluoroethylene (PCTFE) Plastics
- D1600** Terminology for Abbreviated Terms Relating to Plastics
- D2117** Test Methods for Carbon Black—Surface Area by Nitrogen Adsorption (Withdrawn 1999)³
- D4591** Test Method for Determining Temperatures and Heats of Transitions of Fluoropolymers by Differential Scanning Calorimetry
- D7194** Specification for Aerospace Parts Machined from Polychlorotrifluoroethylene (PCTFE)

3. Terminology

3.1 Definitions:

3.1.1 Terms are defined in accordance with Terminologies **D883** and **D1600** unless listed below.

3.1.2 *Zero Strength Time (ZST)*, n —time measured in accordance with Section 10 of Classification **D1430** to check the relative molecular weight of the PCTFE material.

4. Classification

4.1 Part shape and size shall be defined by the applicable purchase order.

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.

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