



Designation: D 3293 - 91a (Reapproved 1996)

Standard Specification for PTFE Resin Molded Sheet¹

This standard is issued under the fixed designation D 3293; 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 Department of Defense. Consult the DoD Index of Specifications and Standards for the specific year of issue which has been adopted by the Department of Defense.

1. Scope

1.1 This specification covers molded sheet in minimum thicknesses of 0.794 mm ($1/32$ in.) manufactured from PTFE resin molding materials.

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

1.3 The following hazard caveat pertains only to the test method portion, Section 7, 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.*

2. Referenced Documents

2.1 ASTM Standards:

D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies²

D 618 Practice for Conditioning Plastics and Electrical Insulating Materials for Testing³

D 638 Test Method for Tensile Properties of Plastics³

D 792 Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement³

D 1457 Specification for PTFE Molding and Extrusion Materials³

D 1505 Test Method for Density of Plastics by the Density-Gradient Technique³

D 1708 Test Method for Tensile Properties of Plastics by Use of Microtensile Specimens³

D 1898 Practice for Sampling of Plastics³

D 3892 Practice for Packaging/Packing of Plastics⁴

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method⁵

2.2 Military Standard:

MIL-STD-105D Sampling Procedures and Tables for Inspection by Attributes⁶

¹ This specification is under the jurisdiction of ASTM Committee D-20 on Plastics, and is the direct responsibility of Subcommittee D20.15 on Thermoplastic Materials (Section 20.15.12).

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² Annual Book of ASTM Standards, Vol 10.02.

³ Annual Book of ASTM Standards, Vol 08.01.

⁴ Annual Book of ASTM Standards, Vol 08.02.

⁵ Annual Book of ASTM Standards, Vol 14.02.

⁶ Available from Standardization Documents, Order Desk, Bldg. 4, Section D, 700 Robbins Ave., Philadelphia, PA 19111-5094, ATTN: NPODS.

3. Classification

3.1 This specification covers the following four types of PTFE sheets:

3.1.1 *Type I*—Premium; normally used for exacting electrical, mechanical, or chemical applications.

3.1.2 *Type II*—General purpose for electrical, mechanical, and chemical applications not requiring premium material.

3.1.3 *Type III*—Commercial; for noncritical chemical, electrical, and mechanical applications.

3.1.4 *Type IV*—Utility; having no electrical requirements, and with mechanical properties at a lower level.

3.2 Types I, II, III, and IV may be subdivided into two grades as follows:

3.2.1 *Grade 1*—made only from virgin resin.

3.2.2 *Grade 2*—may be made using reprocessed resin.

3.3 The grades may be further subdivided into three classes as follows:

3.3.1 *Class A*—resistant to thermal dimensional change not exceeding 0.5 %.

3.3.2 *Class B*—resistant to thermal dimensional change not exceeding 5.0 %.

3.3.3 *Class C*—thermal dimensional change may exceed 5.0 %.

3.4 A one-line system may be used to specify materials covered by this specification. The system uses predefined cells to refer to specific aspects of this specification, as illustrated below.

Specification				
Standard Number Block	Type	Grade	Class	Special Notes
Example: Specification D 4895 - 89,	I	6	C	

For this example, the line callout would be Specification D 4895 - 89, I6C, and would specify a coagulated dispersion form of polytetrafluoro-ethylene that has all of the properties listed for that Type, Grade, and Class in the appropriate specified properties, tables, or both, in the specification identified. A comma is used as the separator between the Standard Number and the Type. Separators are not needed between the Type, Grade, and Class.⁷ Provision for Special Notes is included so that other information can be provided when required. An example would be in Specification D 3295 - 81a where dimensions and tolerances are specified

⁷ See the ASTM Form and Style Manual. Available from ASTM Headquarters.