



Designation: D 4101 – 02a

Standard Specification for Polypropylene Injection and Extrusion Materials¹

This standard is issued under the fixed designation D 4101; 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.

INTRODUCTION

This specification is not intended for the selection of materials but only as a means to call out plastic materials to be used for the manufacture of parts. The selection of these materials is to be made by personnel with expertise in the plastics field where the environment, inherent properties of the materials, performance of the part, part design, manufacturing process, and economics are considered.

1. Scope *

1.1 This specification covers polypropylene materials suitable for injection molding and extrusion. Polymers consist of homopolymer, copolymers, and elastomer compounded with or without the addition of impact modifiers (ethylene-propylene rubber, polyisobutylene rubber, and butyl rubber), colorants, stabilizers, lubricants, or reinforcements.

1.2 This specification allows for the use of those polypropylene materials that can be recycled, reconstituted, and reground, provided that: (1) the requirements as stated in this specification are met, and (2) the material has not been modified in any way to alter its conformance to food contact regulations or similar requirements. The proportions of recycled, reconstituted, and reground material used, as well as the nature and the amount of any contaminant, cannot be practically covered in this specification. It is the responsibility of the supplier and the buyer of recycled, reconstituted, and reground materials to ensure compliance. (See Guide D 5033.)

1.3 The values stated in SI units are to be regarded as the standard.

NOTE 1—The properties included in this specification are those required to identify the compositions covered. There may be other requirements necessary to identify particular characteristics important to specific applications. These will be designated by using the suffixes given in Section 1.

1.4 The following safety hazards caveat pertains only to the test methods portion, Section 13, 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.

NOTE 2—There is no similar or equivalent ISO standard.

2. Referenced Documents

2.1 ASTM Standards:

- C 177 Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Guarded-Hot-Plate Apparatus²
- D 149 Test Method for Dielectric Breakdown Voltage and Dielectric Strength of Electrical Insulating Materials at Commercial Power Frequencies³
- D 150 Test Methods for A-C Loss Characteristics and Permittivity (Dielectric Constant) of Solid Electrical Insulation³
- D 256 Test Methods for Determining the Izod Pendulum Impact Resistance of Plastics⁴
- D 257 Test Methods for D-C Resistance or Conductance of Insulating Materials³
- D 495 Test Method for High Voltage, Low Current, Dry Arc Resistance of Solid Electrical Insulation³
- D 523 Test Method for Specular Gloss⁵
- D 543 Practices for Evaluating the Resistance of Plastics to Chemical Reagents⁴
- D 570 Test Method for Water Absorption of Plastics⁴
- D 618 Practice for Conditioning Plastics for Testing⁴
- D 635 Test Method for Rate of Burning and/or Extent and Time of Burning of Self-Supporting Plastics in a Horizontal Position⁴
- D 638 Test Method for Tensile Properties of Plastics⁴
- D 648 Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position⁴

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 Annual Book of ASTM Standards, Vol 04.06.

³ Annual Book of ASTM Standards, Vol 10.01.

⁴ Annual Book of ASTM Standards, Vol 08.01.

⁵ Annual Book of ASTM Standards, Vol 06.01.

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