



Designation: D3981 – 09a (Reapproved 2024)^{ε1}

Standard Specification for Polyethylene Films Made from Medium-Density Polyethylene for General Use and Packaging Applications¹

This standard is issued under the fixed designation D3981; 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.

^{ε1} NOTE—Reapproved with editorial changes to Section 1 in February 2024.

1. Scope

1.1 This specification covers unpigmented, unsupported, sheet or tubular, medium-density polyethylene films (hereafter referred to as film or films) from resins having densities in the range from 926.0 to 938.0 kg/m³ (0.926 to 0.938 g/cm³), inclusive, as measured on molded plaques.

1.2 This specification is applicable to homopolymer polyethylene but is not restricted to it.

1.3 This specification is also applicable to films made from copolymer polyethylene commonly referred to in industry as low-pressure polyethylene.

1.4 This specification is also applicable to films made from blends of homopolymers and copolymers, including ethylene/vinyl-acetate copolymers.

1.5 This specification allows for the use of recycled polyethylene film or resin as feedstock, in whole or in part, as long as all the requirements of this specification are met and as long as any specific requirements as governed by the producer and end user are also met (see [Note 1](#)).

NOTE 1—Guide [D7209](#) contains terminology and definitions relating to recycled plastics.

1.6 Special care must be exercised if this specification is applied to colored or pigmented films. This specification does not address specific problems associated with coloring, such as, quantity and quality of pigment dispersion, optical properties, and increase in density. These and other areas must be taken into account by mutual agreement between the supplier and the purchaser.

¹ This specification is under the jurisdiction of ASTM Committee [D20](#) on Plastics and is the direct responsibility of Subcommittee [D20.19](#) on Film, Sheeting, and Molded Products.

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1.7 The thickness of the films covered by this specification range from 25 to 100 μm (0.001 to 0.004 in.), inclusive. The maximum width of the sheet or lay-flat is 3.05 m (120 in.).

1.8 This specification does not cover oriented heat-shrinkable films.

1.9 This specification defines the levels of various physical properties from which specifications for specific films are to be described. The levels of physical properties required by a film for a given application are selected from [Section 6](#) and the corresponding tables. However, [Sections 7.2 – 7.5](#) relating to tolerances shall apply without change to all film falling within the scope indicated by the title and [1.1 – 1.4](#).

1.10 This specification covers dimensional tolerances, classification, intrinsic quality requirements, and test methods. The dimensional tolerances include thickness, width, and length or yield. Classification defines types, classes, surfaces, and finishes. The intrinsic quality requirements include density, workmanship, impact strength, tensile strength, heat sealability, and odor, as well as the classification properties for stiffness, coefficient of friction, optical properties, and surface treatment. A sampling method is included.

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

1.12 The following precautionary caveat pertains only to the test methods portion, [Section 10](#), 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 2—There is no known ISO equivalent to this standard.

1.13 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the*

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