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Standard Guide for Techniques to Separate and Identify Contaminants in Recycled Plastics¹

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¹ This guide is under the jurisdiction of ASTM Committee D-20 on Plastics and is the direct responsibility of Subcommittee ~~D20.70~~ D20.95 on ~~Analytical Methods~~ Recycled Plastics.

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1. Scope

1.1 This guide is intended to provide information on available methods for the separation and classification of contaminants such as moisture, incompatible polymers, metals, adhesives, glass, paper, wood, chemicals, and original-product residues in recycled plastic flakes or pellets. Although no specific methods for identification or characterization of foam products are included, foam products are not excluded from this guide. The methods presented apply to post-consumer plastics.

1.2 For specific procedures existing as ASTM test methods, this guide only lists the appropriate reference. Where no current ASTM standard exists, however, this guide gives procedures for the separation or identification, or both, of specific contaminants. Appendix X1 lists the tests and the specific contaminant addressed by each procedure.

1.3 This guide does not include procedures to quantify the contaminants unless this information is available in referenced ASTM standards.

1.4 *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—Although this guide references ISO standards, there is no similar or equivalent ISO standard covering this topic.

2. Referenced Documents

2.1 ASTM Standards:

- D 789 Test Methods for Determination of Relative Viscosity, Melting Point, and Moisture Content of Polyamide (PA)²
- D 792 Test Methods for Specific Gravity (Relative Density) and Density of Plastics by Displacement²
- D 883 Terminology Relating to Plastics²
- D 1003 Test Method for Haze and Luminous Transmittance of Transparent Plastics²
- D 1193 Specification for Reagent Water³
- D 1238 Test Method for Flow Rates of Thermoplastics by Extrusion Plastometer²
- D 1457 Specification for Polytetrafluoroethylene (PTFE) Molding and Extrusion Materials²
- D 1505 Test Method for Density of Plastics by the Density-Gradient Technique²
- D 1898 Practice for Sampling of Plastics²
- D 1925 Test Method for Yellowness Index of Plastics²
- D 3418 Test Method for Transition Temperatures of Polymers by Thermal Analysis⁴
- D 4019 Test Method for Moisture in Plastics by Coulometric Regeneration of Phosphorus Pentoxide⁴
- D 5033 Guide for the Development of Standards Relating to the Proper Use of Recycled Plastics⁵
- D 5227 Test Method for the Measurement of Hexane Extractable Content of Polyolefins⁵
- E 169 Practices for General Techniques of Ultraviolet-Visible Quantitative Analysis⁶
- E 355 Practice for Gas Chromatography Terms and Relationships⁶
- E 682 Practice for Liquid Chromatography Terms and Relationships⁶

² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 11.01.

⁴ Annual Book of ASTM Standards, Vol 08.02.

⁵ Annual Book of ASTM Standards, Vol 08.03.

⁶ Annual Book of ASTM Standards, Vol 14.01.