



Standard Practice for Separation and Washing of Recycled Plastics Prior to Testing¹

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1. Scope

1.1 The practice describes a procedure for separating recycled plastics based on their color (for example, green versus colorless) and a procedure for washing dirty, ground plastic which results in separation of light materials (density < 1.00 g/cm³). This practice is not intended to represent generic washing procedures used in the plastics recycling industry. The described procedures are solely for preparation of plastic samples for use in other analytical tests. The procedure includes a room temperature wash step to facilitate separation of paper (for example, labels) followed by washing at an elevated temperature.

NOTE 1—Although not presented as a quantitative method, the procedure presented in this practice may be used to provide quantitative results. The user assumes the responsibility to verify the reproducibility of quantitative results.

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

1.3 *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 equivalent ISO standard.

2. Referenced Documents

2.1 ASTM Standards:

D 1600 Terminology for Abbreviated Terms Relating to Plastics²

D 5033 Guide for the Development of Standards Relating to the Proper Use of Recycled Plastics³

D 5814 Practice for Determination of Contamination in Recycled Poly(Ethylene Terephthalate) (PET) Flakes and Chips Using a Plaque Test³

E 5991 Practice for Separation and Identification of Poly-

(Vinyl Chloride) (PVC) Contamination in Poly(Ethylene Terephthalate) (PET) Flake³

IEEE/ASTM SI 10 Standard for Use of the International System of Units (SI): The Modern Metric System⁴

3. Terminology

3.1 The terminology used in this practice is in accordance with Terminology D 1600 and Guide D 5033. Units and symbols are in accordance with Standard IEEE/ASTM SI 10.

3.2 Definitions of Terms Specific to This Standard:

3.2.1 *light material*—paper, polymers such as polyethylene and polypropylene, and other materials with densities less than 1.00 g/cm³.

4. Summary

4.1 Different colored (for example, green versus colorless) plastic materials are readily distinguished by visual inspection of a sample.

4.2 Labels, glue residues and other plastics may absorb the dyes used in some procedures for identifying contaminants or these other contaminants may exhibit interfering fluorescence. Consequently, a standard procedure is provided for washing the plastic prior to examination by these tests.

4.3 This practice utilizes a room temperature wash step to facilitate separation of paper (for example, labels) followed by washing at an elevated temperature to permit separation of plastics and other contaminants based on densities. The room temperature wash step effectively removes labels without activating some adhesives.

NOTE 3—The dye and fluorescence tests that may require plastic washed by this procedure are specifically designed to detect poly(vinyl chloride) (PVC) contamination.

4.4 Washed recycled plastic materials are then used for tests such as those described in Practices D 5814 or D 5991.

5. Significance and Use

5.1 Dirt, paper and mixtures of polymeric materials complicate the interpretation of data from procedures used to identify and, if desired, quantify the contaminants in recycled plastics.

¹ This practice is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.95 on Recycled Plastics.

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² *Annual Book of ASTM Standards*, Vol 08.01.

³ *Annual Book of ASTM Standards*, Vol 08.03.

⁴ *Annual Book of ASTM Standards*, Vol 14.02.