



Designation: D 3465 – 00

Standard Test Method for Purity of Monomeric Plasticizers by Gas Chromatography¹

This standard is issued under the fixed designation D 3465; 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 approval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope *

1.1 This gas chromatographic test method covers a procedure for extending the range of purity determination of monomeric plasticizers beyond that now determined by other methods. Due to the need to volatilize the plasticizer, only monomeric plasticizers having definitive boiling points and a molecular weight less than 1000 Daltons, such as dioctyl phthalate, are applicable to this test method.

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

1.3 The text of this test method references notes and footnotes that provide explanatory material. These notes and footnotes (excluding those in tables and figures) are not to be considered as requirements of this test method.

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.* Specific precautionary statements are given in Section 9

NOTE 1—There is no ISO equivalent for this test method.

2. Referenced Documents

2.1 ASTM Standards:

- D 883 Terminology Relating to Plastics²
- D 1600 Terminology for Abbreviated Terms Relating to Plastics²
- D 2124 Test Method for Analysis of Components in Poly-(Vinyl Chloride) Compounds Using an Infrared Spectrophotometric Technique²
- E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods³
- E 260 Practice for Packed Column Gas Chromatography³
- E 355 Practice for Gas Chromatography Terms and Relationships³
- E 594 Standard Practice for Testing Flame Ionization Detectors in Gas or Supercritical Fluid Chromatography³

¹ This test method is under the jurisdiction of ASTM Committee D20 on Plastics and is the direct responsibility of Subcommittee D20.70 on Analytical Methods (Section D20.70.03).

Current edition approved Aug. 10, 2000. Published October 2000. Originally published as D 3465 – 75. Last previous edition D 3465 – 75 (1990).

² Annual Book of ASTM Standards, Vol 08.01.

³ Annual Book of ASTM Standards, Vol 14.02.

E 1510 Practice for Installing Fused Silica Open Tubular Capillary Columns in Gas Chromatographs³
IEEE/ASTM SI-10 Practice for Use of the International System of Units (SI), the Modernized Metric System⁴

3. Terminology

3.1 Definitions:

3.1.1 *General*—Definitions are in accordance with Terminology D 883 and Terminology D 1600 unless otherwise indicated.

3.1.2 All gas chromatography terms and relationships used in this test method are consistent with, or refer to, Practice E 355.

4. Summary of Test Method

4.1 A test portion of the plasticizer to be analyzed is injected onto a gas chromatographic column and separated into its components, which are sensed by the detector and quantified by an electronic data acquisition system (computer) or an integrator. The purity is based on the total area response of the principal peak(s). All other components are impurities.

5. Significance and Use

5.1 Infrared techniques frequently cannot detect low-level materials. Gas chromatographic methods possess higher sensitivity, and are used to extend (FL) limits of detection.

5.2 It is expected that this test method will be suitable for specifications, manufacturing control, and research and development. An area percent method of determining concentration of the components shall be used if the area percent of the plasticizer is 99.0 % or higher. However, if the area percent of the plasticizer is less than 99.0 % or should any question arise about the data, an internal standard shall be used.

5.3 Impurities that may be found in monomeric plasticizers include alcohols, dibasic acids, and monoesters.

6. Interferences

6.1 Gas chromatography (GC) retention times are dependent on several variables, and it is possible to have two or more components with identical retention times. The GC operator should take the necessary steps to insure that adequate separation of the plasticizer components is achieved. Analysis by

⁴ Annual Book of ASTM Standards, Vol 14.04.

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