



Standard Specification for Purified Terephthalic Acid (PTA)¹

This standard is issued under the fixed designation D7976; 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.

1. Scope

1.1 This specification covers purified terephthalic acid (PTA) for use in the manufacturing of polymers. Some examples include the production of polyesters for fiber, filament, yarn, film, coating, bottle and resin applications.

1.2 The following applies to all specified limits in this specification: for purposes of determining conformance with this specification, an observed value or a calculated value shall be rounded off to the nearest unit in the last right-hand digit used in expressing the specification limit, in accordance with the rounding-off method of Practice E29.

1.3 The values stated in SI units are to be regarded as standard. No other units of measurement are included in this standard.

1.4 Consult current OSHA regulations, supplier's Safety Data Sheets, and local regulations for all materials used in this specification.

1.5 *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.*

2. Referenced Documents

2.1 ASTM Standards:²

D7881 Test Method for Determination of 4-Carboxybenzaldehyde and *p*-Toluic Acid in Purified Terephthalic Acid by Capillary Electrophoresis with Reverse Voltage Mode

D7882 Test Method for Determination of 4-Carboxybenzaldehyde and *p*-Toluic Acid in Purified Terephthalic Acid by Capillary Electrophoresis with Normal Voltage Mode

D7883 Test Method for Determination of 4-Carboxybenzaldehyde and *p*-Toluic Acid in Purified Terephthalic Acid by Weak Anion Exchange High Performance Liquid Chromatography

D7884 Test Method for Determination of 4-Carboxybenzaldehyde and *p*-Toluic Acid in Purified Terephthalic Acid by Reverse Phase High Performance Liquid Chromatography

E29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications

E300 Practice for Sampling Industrial Chemicals

2.2 Other Documents:

OSHA Regulations, CFR 29 paragraphs 1910.1000 and 1910.1200³

3. Terminology

3.1 Definitions:

3.1.1 *purified terephthalic acid*, n —(C₈H₆O₄) molecular weight, 166.13; white crystalline solid or powder; sublimes, 402 to 404°C; abbreviated as PTA (CAS #100-21-0).

3.1.2 *4-carboxybenzaldehyde*, n —(C₈H₆O₃) molecular weight, 150.13; white to yellow crystalline solid or powder; melting point, 247°C; abbreviated as 4-CBA (CAS #619-66-9).

3.1.3 *p-toluic acid*, n —(C₈H₈O₂) molecular weight, 136.15; white crystalline solid or powder; melting point, 180 to 181°C; abbreviated as *p*-TOL (CAS #99-94-5).

¹ This specification is under the jurisdiction of ASTM Committee D16 on Aromatic Hydrocarbons and Related Chemicals and is the direct responsibility of Subcommittee D16.02 on Oxygenated Aromatics.

Current edition approved Dec. 1, 2014. Published January 2015. DOI: 10.1520/D7976-14.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ Available from U.S. Government Printing Office Superintendent of Documents, 732 N. Capitol St., NW, Mail Stop: SDE, Washington, DC 20401, http://www.access.gpo.gov.

4. Properties

4.1 PTA shall conform to the following requirements:

Property	Specification	ASTM Test Method ^A
4-CBA, max, mg/kg	25	D7881 or D7882 or D7883 or D7884
4-CBA plus <i>p</i> -TOL, max, mg/kg	190	D7881 or D7882 or D7883 or D7884

^A If more than one method is listed, the producer and user should agree on the referee method.

5. Sampling

5.1 The material shall be sampled in accordance with Practice E300.

6. Keywords

6.1 purified terephthalic acid; *p*-toluic acid; 4-carboxybenzaldehyde

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