



Designation: D6621 – 21

# Standard Practice for Performance Testing of Process Analyzers for Aromatic Hydrocarbon Materials<sup>1</sup>

This standard is issued under the fixed designation D6621; 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 ( $\epsilon$ ) indicates an editorial change since the last revision or reapproval.

## 1. Scope\*

1.1 This practice serves as a practical guide for the performance testing of process stream analyzers specifically for measuring chemical or physical characteristics of liquid aromatic hydrocarbon materials for production or certification of these materials. The practice may be applicable to other hydrocarbon stream analyzers as well.

1.2 Only external methods (complete substitution of the process stream with a standard) of control sample introduction are included. Internal methods are beyond the scope of this practice.

1.3 Methods for resetting key operational parameters of analyzers to match predefined limits are provided by vendors and are not included in this practice.

1.4 Analyzer validation procedures are covered in Practices [D3764](#) and [D6122](#), not in this practice.

1.5 Procedures for statistically interpreting data from automatic sampling process stream analyzers are outlined.

1.6 The implementation of this practice requires that the analyzer be installed according to APIRP-550 ([1](#)),<sup>2</sup> and be in agreement with the analyzer supplier's recommendations. Also, it assumes that the analyzer is designed to monitor the specific material parameter of interest, and that at the time of initial or periodic validation, the analyzer was operating at the conditions specified by the manufacturer and consistently with the primary test method.

1.7 The units of measure used in this practice shall be the same as those applicable to the test primary method used for analyzer validation.

1.8 *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 appro-*

*priate safety, health, and environmental practices, and determine the applicability of regulatory limitations prior to use.*

1.9 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

## 2. Referenced Documents

2.1 *ASTM Standards:*<sup>3</sup>

[D3437 Practice for Sampling and Handling Liquid Cyclic Products](#)

[D3438 Practice for Sampling and Handling Naphthalene, Maleic Anhydride, and Phthalic Anhydride](#)

[D3764 Practice for Validation of the Performance of Process Stream Analyzer Systems](#)

[D3852 Practice for Sampling and Handling Phenol, Cresols, and Cresylic Acid](#)

[D6122 Practice for Validation of the Performance of Multivariate Online, At-Line, Field and Laboratory Infrared Spectrophotometer, and Raman Spectrometer Based Analyzer Systems](#)

[E456 Terminology Relating to Quality and Statistics](#)

[E1655 Practices for Infrared Multivariate Quantitative Analysis](#)

## 3. Terminology

3.1 *Definitions:*

3.1.1 *accuracy, n*—closeness of agreement between a test result and an accepted reference value.

3.1.2 *analyzer output, n*—signal that is proportional to the quality parameter being measured and suitable for input to readout instrumentation.

3.1.2.1 *Discussion*—It may be pneumatic, electrical, digital, etc., and expressed as psi, mv, sec., etc.

<sup>1</sup> This practice is under the jurisdiction of ASTM Committee [D16](#) on Aromatic, Industrial, Specialty and Related Chemicals and is the direct responsibility of Subcommittee [D16.09](#) on On-Line Analysis.

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<sup>2</sup> The boldface numbers in parentheses refer to the list of references at the end of this practice.

<sup>3</sup> For referenced ASTM standards, visit the ASTM website, [www.astm.org](http://www.astm.org), or contact ASTM Customer Service at [service@astm.org](mailto:service@astm.org). For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

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