



Standard Guide for Interpretation and Use of Results from Interlaboratory Testing of Chemical Analysis Methods¹

This standard is issued under the fixed designation E1763; 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 guide covers procedures to help a task group interpret interlaboratory study (ILS) statistics to state precision and accuracy of a test method and make judgments concerning its range of use.

1.2 *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

- D6512 Practice for Interlaboratory Quantitation Estimate
- E135 Terminology Relating to Analytical Chemistry for Metals, Ores, and Related Materials
- E1601 Practice for Conducting an Interlaboratory Study to Evaluate the Performance of an Analytical Method
- E1763 Guide for Interpretation and Use of Results from Interlaboratory Testing of Chemical Analysis Methods
- E1914 Practice for Use of Terms Relating to the Development and Evaluation of Methods for Chemical Analysis

3. Terminology

3.1 For definitions of terms used in this guide, refer to Terminology E135.

3.2 For descriptions of terms used in this guide, refer to Practice E1914.

4. Significance and Use

4.1 A written test method is subjected to an ILS to evaluate its performance. The ILS produces a set of statistical estimates

that depend upon the method, but also are influenced by the laboratories and test materials involved in the study. For that reason, the ILS task group must interpret these estimates, aided by this guide and using analytical judgment, to decide if the method is suitable to be balloted for publication as a standard. The task group may use this guide to help them prepare the precision and bias statements that are a required part of the method.

5. Interlaboratory Studies

5.1 The following statement is required in each test method:

5.1.1 This test method has been evaluated in accordance with Practice E1601 and Guide E1763. Unless otherwise noted in the precision and bias section, the lower limit in the scope of each method specifies the lowest analyte content that may be analyzed with acceptable error (defined as a nominal 5 % risk of obtaining a 50 % or larger relative difference in results on the same test sample in two laboratories).

NOTE 1—this guide has been found to be useful for calculation of the interlaboratory quantitation estimate in accordance with Practice D6512, using known reference values in place of the measured values for application to that practice. It has been found necessary to replace the zero value for the blank with a very small number in order to apply this practice to that method to avoid the divide by zero computational error.

6. Required Statistical Information

6.1 A task group satisfies the requirement for statistical information if the method includes a table of the ILS statistics prepared in accordance with 6.2 and 6.3 and a summary statement selected from the model statements in Section 9. If the task group wishes to provide further statistical information, it may do so in accordance with the provisions of Section 7.

6.2 *Variability Data*—List the variability statistics for each analyte in a separate table arranged by increasing analyte content. List the number of independent data sets used in the calculations and the ILS statistics calculated in accordance with Practice E1601. Where appropriate, list the material type and reference material identification. Follow the examples of Table 1, Table 2, and Table 3.

¹ This guide is under the jurisdiction of ASTM Committee E01 on Analytical Chemistry for Metals, Ores and Related Materials and is the direct responsibility of Subcommittee E01.22 on Laboratory Quality.

Current edition approved Nov. 1, 2006. Published November 2006. Originally approved in 1995. Last previous edition approved in 2003 as E1763 – 98 (2003). DOI: 10.1520/E1763-06.

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.