



Standard Practice for Interlaboratory Evaluation of Test Methods Used with Paper and Paper Products¹

This standard is issued under the fixed designation D 1749; 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 The purpose of an interlaboratory study is to determine the variability in results caused by differences among laboratories following a prescribed test method, the consistency from material to material of this variability, and the type of additional standardization needed, if any. The study may be made to obtain information for improving the test method or to arrive at an estimate of the precision of an existing method for publication. It may also include a comparison of alternative test methods.

1.2 To achieve the objectives in 1.1 satisfactorily, it is essential that a sound statistical design be employed in the planning of an interlaboratory study. This practice gives the basic principles involved in the planning in order to make the data amenable to statistical analysis and interpretation.

1.3 This practice has been written for the task group chairman responsible for the preparation or the revision of a standard test method. It tells him what information he needs in order to properly plan an interlaboratory study (Sections 1-10), it outlines the procedure for conducting the study (Section 11), and it gives him background information for understanding the analysis (Section 12) and interpretation (Sections 13-15) of the results.

1.4 While the services of a statistician are not absolutely necessary for the design, analysis, and interpretation of interlaboratory studies, questions often arise that could be readily answered by a statistician familiar with the analysis used herein. Hence, the task group chairman should arrange whenever possible to consult with a statistician both during the planning and during the analysis and interpretation.

1.5 This practice is similar to TAPPI T 1200, which details the analysis using a set of typical data.

1.6 *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

D 685 Practice for Conditioning Paper and Paper Products for Testing

E 177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E 178 Practice for Dealing With Outlying Observations

E 456 Terminology Relating to Quality and Statistics

E 691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

2.2 *TAPPI Standards:*

T 402 Standard conditioning and testing atmospheres for paper, board, pulp handsheets, and related products³

T 1200 Interlaboratory evaluation of test methods to determine TAPPI repeatability and reproducibility³

T 1205 Dealing with outlying test results³

OUTLINE OF RECOMMENDED PROCEDURE

3. Formulating the Problem

3.1 If the objective of the task group was not clearly spelled out when the task group was established, determine this by task group discussion, and obtain approval from the chairman of the parent committee (Annex A1.1).

3.2 Refer to Terminology E 456 for terminology.

4. Preliminary Study Within One Laboratory

4.1 Investigate the several variables of the test method, both experimentally and theoretically, including the following (see also A1.2.1-A1.2.3).

4.1.1 Survey the literature and other sources of information for possible sources of variability in the application of the test method.

4.1.2 Determine how the result of measurement is affected by variations in the critical dimensions of instruments or critical steps in the procedure.

¹ This practice is under the jurisdiction of ASTM Committee D06 on Paper and Paper Products and is the direct responsibility of Subcommittee D06.92 on Standard Documents Relating to Paper and Paper Products.

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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 the Technical Association of the Pulp and Paper Industry, P.O. Box 105113, Atlanta, GA 30348.