



Standard Guide for Conducting an Interlaboratory Study to Determine the Precision of a Test Method¹

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1. Scope*

1.1 This guide describes the procedures for planning and conducting an interlaboratory study (ILS) of a test method used in Petroleum Products and Lubricants Committee D02 of ASTM for the purpose of estimating repeatability and reproducibility of the test method in accordance with ASTM Form and Style requirements.

1.2 This guide is concerned with the management of the ILS and intended to provide guidance for the planning stage and ensure the process, logistics, and tools are identified and agreed upon in advance.

1.2.1 Selection of the samples and the impact of sample selection on the final scope of the test method—both the range of materials covered in the scope and precision sections and the measurement range covered in the precision section—are important, and careful consideration needs to be given to these aspects before an ILS is launched.

1.3 This guide does not concern itself with the development of test methods but rather with gathering the information needed for a test method precision statement.

1.4 This guide is concerned with test methods which yield a single numerical figure as the test result, although the single figure may be the result of a calculation from a set of measurements.

1.5 This guide is designed for tests of properties that are stable, such that bulk samples can be homogenized and sub-samples can be prepared that will be identical and stable for the duration of the ILS testing period. This guide is not designed for unstable properties or for properties that make it difficult to obtain stable, representative samples for an ILS conducted at multiple laboratory sites.

1.6 This guide represents the suggested practices for a typical precision study. Individual subcommittees may modify this approach as their expertise directs.

1.7 This guide is voluntary, and thus, is not required for an approved precision study.

2. Referenced Documents

2.1 ASTM Standards:²

D130 Test Method for Corrosiveness to Copper from Petroleum Products by Copper Strip Test

D4306 Practice for Aviation Fuel Sample Containers for Tests Affected by Trace Contamination

D5854 Practice for Mixing and Handling of Liquid Samples of Petroleum and Petroleum Products

D6300 Practice for Determination of Precision and Bias Data for Use in Test Methods for Petroleum Products and Lubricants

D6708 Practice for Statistical Assessment and Improvement of Expected Agreement Between Two Test Methods that Purport to Measure the Same Property of a Material

D6792 Practice for Quality System in Petroleum Products and Lubricants Testing Laboratories

E1177 Practice for Use of the Terms Precision and Bias in ASTM Test Methods

E178 Practice for Dealing With Outlying Observations

E456 Terminology Relating to Quality and Statistics

E691 Practice for Conducting an Interlaboratory Study to Determine the Precision of a Test Method

E1169 Practice for Conducting Ruggedness Tests

2.2 ISO/IEC Standards:³

ISO/IEC Guide 30 Terms and Definitions Used in Connection with Reference Materials

ISO/IEC Guide 17025 General Requirements for the Competence of Testing and Calibration Laboratories

3. Terminology

3.1 Definitions:

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products, Liquid Fuels, and Lubricants and is the direct responsibility of Subcommittee D02.94.01 on Task Group A: Quality Assurance and Quality Control.

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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 Available from Aerospace Industries Association of America, Inc. (AIA), 1000 Wilson Blvd., Suite 1700, Arlington, VA 22209-3928, <http://www.aia-aerospace.org>.