



Standard Practice for Utilization of Test Data to Determine Conformance with Specifications¹

This standard is issued under the fixed designation D3244; 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.

INTRODUCTION

The properties of commercial petroleum products are measured by standardized laboratory test methods to check their conformance to specifications. Two or more measurements of the same property of a specific sample by any given test method usually will not give precisely the same answer. Therefore, the test methods generally include a paragraph on the precision of results. This precision is an expression of the reliability of the value of the measured property.

Many difficulties that arise in interpreting specifications are due to test imprecision. Because of this, a true value of a property can never be determined exactly; and it is necessary to infer from measured values the range within which the “true value” is likely to lie. The main purpose of this practice is to indicate how test imprecision should be interpreted relative to specification values.

1. Scope

1.1 This practice covers guidelines and statistical methodologies with which two parties, usually a supplier and a receiver, can compare and combine independently obtained test results to obtain an Assigned Test Value (ATV) for the purpose of resolving a product quality dispute.

1.2 This practice defines a technique for comparing an assigned test value with a specification limit.

1.3 This practice applies only to those test methods which specifically state that the repeatability and reproducibility values conform to the definitions herein.

2. Referenced Documents

2.1 ASTM Standards:²

D1319 Test Method for Hydrocarbon Types in Liquid Petroleum Products by Fluorescent Indicator Adsorption

D4057 Practice for Manual Sampling of Petroleum and Petroleum Products

D4177 Practice for Automatic Sampling of Petroleum and Petroleum Products

D6300 Practice for Determination of Precision and Bias

Data for Use in Test Methods for Petroleum Products and Lubricants

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

2.2 ISO Standard:³

ISO 4259 Determination and Application of Precision Data in Relation to Methods of Test

3. Terminology

3.1 Definitions:

3.1.1 *acceptance limit (AL), n*—a numerical value that defines the point between acceptable and unacceptable quality.

3.1.1.1 *Discussion*—The AL is not necessarily the specification limit. It is a value that takes into account the specification value, the test method precision, and the confidence level desired for defining minimum acceptable quality relative to the specification value.

3.1.2 *assigned test value (ATV), n*—the average of all results obtained in the several laboratories which are considered acceptable based on the reproducibility of the test method.

3.1.3 *determination, n*—the process of carrying out the series of operations specified in the test method whereby a single value is obtained.

3.1.4 *dispute, n*—when there is a question as to product quality conformance to specification because a test value obtained falls outside the specification limit(s).

3.1.5 *operator, n*—a person who normally and regularly carries out a particular test.

¹ This practice is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of D02.94 on Coordinating Subcommittee on Quality Assurance and Statistics.

Current edition approved Nov. 1, 2007. Published December 2007. Originally published as an appendix to the 1968 *Annual Book of ASTM Standards*, Part 18. Originally approved as a standard in 1974. Last previous edition approved in 2007 as D3244–07. DOI: 10.1520/D3244-07A.

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 American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036, <http://www.ansi.org>.