



Designation: D 86 – 03

An American National Standard

Standard Test Method for Distillation of Petroleum Products at Atmospheric Pressure¹

This standard is issued under the fixed designation D 86; 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.

This standard has been approved for use by agencies of the Department of Defense.

1. Scope*

1.1 This test method covers the atmospheric distillation of petroleum products using a laboratory batch distillation unit to determine quantitatively the boiling range characteristics of such products as natural gasolines, light and middle distillates, automotive spark-ignition engine fuels, aviation gasolines, aviation turbine fuels, 1-D and 2-D regular and low sulfur diesel fuels, special petroleum spirits, naphthas, white spirits, kerosenes, and Grades 1 and 2 burner fuels.

1.2 The test method is designed for the analysis of distillate fuels; it is not applicable to products containing appreciable quantities of residual material.

1.3 This test method covers both manual and automated instruments.

NOTE 1—Interlaboratory consensus test data have been obtained in the last few years under the CS92 program. The statistical equivalency between the manual and the automated procedure is currently under study, based on data from this program obtained between 1994 and 1998.

1.4 Unless otherwise noted, the values stated in SI units are to be regarded as the standard. The values given in parentheses are provided for information only.

1.5 *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 All standards are subject to revision, and parties to agreement on this test method are to apply the most recent edition of the standards indicated below, unless otherwise specified, such as in contractual agreements or regulatory rules where earlier versions of the method(s) identified may be required.

2.2 ASTM Standards:

- D 97 Test Method for Pour Point of Petroleum Products²
 - D 323 Test Method for Vapor Pressure of Petroleum Products (Reid Method)²
 - D 2892 Test Method for Distillation of Crude Petroleum (15-Theoretical Plate Column)²
 - D 4057 Practice for Manual Sampling of Petroleum and Petroleum Products³
 - D 4177 Practice for Automatic Sampling of Petroleum and Petroleum Products³
 - D 4953 Test Method for Vapor Pressure of Gasoline and Gasoline-Oxygenate Blends (Dry Method)³
 - D 5190 Test Method for Vapor Pressure of Petroleum Products (Automatic Method)³
 - D 5191 Test Method for Vapor Pressure of Petroleum Products (Mini Method)³
 - D 5482 Test Method for Vapor Pressure of Petroleum Products (Mini Method-Atmospheric)⁴
 - D 5949 Test Method for Pour Point of Petroleum Products (Automatic Pressure Pulsing Method)⁴
 - D 5950 Test Method for Pour Point of Petroleum Products (Automatic Tilt Method)⁴
 - D 5985 Test Method for Pour Point of Petroleum Products (Rotational Method)⁴
 - E 1 Specification for ASTM Thermometers⁵
 - E 77 Test Method for Inspection and Verification of Thermometers⁵
 - E 1272 Specification for Laboratory Glass Graduated Cylinders⁶
 - E 1405 Specification for Laboratory Glass Distillation Flasks⁶
- 2.3 *IP Standards:*⁷
- IP 69 Determination of Vapour Pressure—Reid Method
 - IP 123 Petroleum Products—Determination of Distillation Characteristics
 - IP 394 Determination of Air Saturated Vapour Pressure

¹ This test method is under the jurisdiction of ASTM Committee D02 on Petroleum Products and Lubricants and is the direct responsibility of Subcommittee D02.08 on Volatility.

In the IP, the equivalent test method is published under the designation IP 123. It is under the jurisdiction of the Standardization Committee.

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² *Annual Book of ASTM Standards*, Vol 05.01.

³ *Annual Book of ASTM Standards*, Vol 05.02.

⁴ *Annual Book of ASTM Standards*, Vol 05.03.

⁵ *Annual Book of ASTM Standards*, Vol 14.03.

⁶ *Annual Book of ASTM Standards*, Vol 14.04.

⁷ Available from the Institute of Petroleum, 61 New Cavendish St., London, W1G 7AR, UK.

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