



BSI Standards Publication

Liquid petroleum products — Determination of distillation characteristics at atmospheric pressure — Micro-distillation

National foreword

This British Standard is the UK implementation of ISO 37306:2025.

The UK participation in its preparation was entrusted to Technical Committee PTI/2, Liquid Fuels.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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Published by BSI Standards Limited 2025

ISBN 978 0 539 35075 3

ICS 75.160.20

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2025.

Amendments/corrigenda issued since publication

Date	Text affected



**International
Standard**

ISO 37306

**Liquid petroleum products —
Determination of distillation
characteristics at atmospheric
pressure — Micro-distillation**

*Produits pétroliers liquides — Détermination des caractéristiques
de distillation à la pression atmosphérique — Micro-distillation*

**First edition
2025-12**

Reference number
ISO 37306:2025(en)

Full document details: BS ISO 37306:2025

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by the European Committee for Standardization (CEN) (as EN 17306) and was adopted without modification other than those given below. It was assigned to, Technical Committee ISO/TC 28, *Petroleum and related products, fuels and lubricants from natural or synthetic sources*, and adopted under a special "fast-track procedure".

- EN ISO references changed to ISO references;
- "V/V" has been replaced with "volume fraction" throughout the text;
- the note has been removed in the scope;
- normative citation of [Annex A](#) added in [6.1](#);
- normative citation of [Annex B](#) added in [13.1](#);
- numbered lists have been introduced in [A.1.3](#) and [A.1.5](#) and subclause numbering updated accordingly.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

The distillation (volatility) characteristics of hydrocarbons and other liquids have an important effect on their safety and performance, especially in the case of fuels and solvents. The boiling range gives information on the composition, the properties, and the behaviour of the fuel during storage and use. Volatility is the major determinant of the tendency of a hydrocarbon mixture to produce potentially explosive vapours.

The distillation characteristics are critically important for both automotive and aviation gasolines, affecting starting, warm-up and tendency to vapour lock at high operating temperature or at high altitude, or both. The presence of high boiling point components in these and other fuels can significantly affect the degree of formation of solid combustion deposits.

Distillation limits are often included in petroleum product specifications, in commercial contract agreements, process refinery/control applications, and for compliance to regulatory rules.

This test method can be applied to contaminated products or hydrocarbon mixtures. This is valuable for fast product quality screening, refining process monitoring, fuel adulteration control, or other purposes including use as a portable apparatus for field testing.

This document is at the time of publication technically equivalent to ASTM D7345,^[1] on which it is based.

This test method uses an automatic micro distillation apparatus, provides fast results using small sample volume, and eliminates much of the operator time and subjectivity in comparison to ISO 3405 or ASTM D1160.^[2]

Liquid petroleum products — Determination of distillation characteristics at atmospheric pressure — Micro-distillation

1 Scope

This document specifies a laboratory method for the determination of the distillation characteristics of light and middle distillates derived from petroleum and related products of synthetic or biological origin with initial boiling points above 20 °C and end-points below approximately 400 °C, at atmospheric pressure utilizing an automatic micro distillation apparatus.

This test method is applicable to such products as light and middle distillates, automotive spark-ignition engine fuels, automotive spark-ignition engine fuels containing a volume fraction of up to 20 % ethanol, aviation gasolines, aviation turbine fuels, (paraffinic) diesel fuels, FAME (B100), diesel blends containing a volume fraction of up to 30 % fatty acid methyl esters (FAME), special petroleum spirits, naphthas, white spirits, kerosenes, burner fuels, and marine fuels.

The test method is also applicable to hydrocarbons with a narrow boiling range, like organic solvents or oxygenated compounds.

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

WARNING — The use of this document can involve hazardous materials, operations and equipment. This document does not purport to address all of the safety problems associated with its use. It is the responsibility of user of this document to take appropriate measures to ensure the safety and health of personnel prior to application of the document, and to fulfil statutory and regulatory requirements for this purpose.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3170, *Hydrocarbon Liquids — Manual sampling*

ISO 3171, *Petroleum liquids — Automatic pipeline sampling*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1 automatic apparatus

microprocessor-controlled unit that performs the procedures of automatically controlling the evaporation of a liquid specimen under specific conditions of this test method, collecting measurement data and converting this data by patented algorithm in order to predict distillation results in correlation with an industry recognized reference method