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**Petroleum products — Gum content of  
fuels — Jet evaporation method**

*Produits pétroliers — Teneur en gommes des carburants — Méthode  
d'évaporation au jet*





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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 documents 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](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by ISO/TC 28, *Petroleum products and related products of synthetic or biological origin*.

This third edition cancels and replaces the second edition (ISO 6246:1995), which has been technically revised and aligned with ASTM D381<sup>[1]</sup>.

It also incorporates the Technical Corrigendum ISO 6246:1995/Cor 1:1998.

The changes incorporate modern methods for temperature measurement and clarification of various measurement limits. Some process steps on the rounding of results are added. The precision in the former edition was based on very old data using samples that did not contain components found in modern gasoline, such as oxygenated compounds and deposit control additives. New precision estimates from a 1997 joint ASTM/EI study<sup>[3]</sup> are included. Unwashed and washed gum results for non-aviation fuels can now be expressed to the nearest 0,5 mg/100 ml. This study and additional work in ASTM<sup>[4]</sup> and CEN in 2014<sup>[5]</sup> have led to broadening of the scope to modern gasoline (blends).

## Introduction

The true significance of this test method for determining gum in motor gasoline is not firmly established. It has been proven that high gum content can cause induction-system deposits and sticking of intake valves, and in most cases, it can be assumed that low gum content will ensure absence of induction-system difficulties. The user should, however, realize that the test is not of itself correlative to induction-system deposits.

The primary purpose of the test, as applied to motor gasoline, is the measurement of the oxidation products formed in the sample prior to or during the comparatively mild conditions of the test procedure. Since many kinds of motor gasoline are purposely blended with non-volatile oils or additives, the heptane extraction step is necessary to remove these from the evaporation residue so that the deleterious material, gum, can be determined. With respect to aviation turbine fuels, large quantities of gum are indicative of contamination of fuel by higher boiling oils or particulate matter and generally reflect poor handling practices in distribution downstream of the refinery.



# Petroleum products — Gum content of fuels — Jet evaporation method

**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 users of this document to take appropriate measures to ensure the safety and health of personnel prior to application of the document, and fulfil statutory and regulatory requirements for this purpose.

## 1 Scope

This document specifies a method for determining the existent gum content of aviation fuels and the gum content of motor gasoline or other volatile distillates. It includes the determination of products containing ethanol (up to a volume fraction of 85 %) and ether-type oxygenates and deposit control additives.

For determination of gum content in automotive ethanol (E85) fuel, no precision data is available (see [14.1](#)).

For non-aviation fuels, a procedure for the determination of the heptane-insoluble portion of the residue is also described.

**CAUTION** — This method is not intended for the testing of gasoline components, particularly those with a high percentage of low-boiling unsaturated compounds, as they can cause explosions during evaporation.

## 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, *Petroleum liquids — Manual sampling*

ISO 3171, *Petroleum liquids — Automatic pipeline sampling*

ISO 3696, *Water for analytical laboratory use — Specification and test methods*

ISO 4259, *Petroleum products — Determination and application of precision data in relation to methods of test*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

ASTM E2251-14, *Standard specification for liquid-in-glass ASTM thermometers with low-hazard precision liquids*

BS 2000, *IP standard thermometers*

## 3 Terms and definitions

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

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

— IEC Electropedia: available at <http://www.electropedia.org/>