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Cigarettes — Determination of water in total particulate matter from the mainstream smoke —

Part 1: Gas-chromatographic method

Cigarettes — Dosage de l'eau dans la matière particulaire totale du courant principal de fumée —

Partie 1: Méthode par chromatographie en phase gazeuse

Reference number
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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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).

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).

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.

This document was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products.*

This third edition cancels and replaces the second edition (ISO 10362-1:1999), which has been technically revised. It also incorporates the Amendment ISO 10362-1:1999/AMD 1:2011. The main changes compared to the previous edition are as follows:

— capillary column procedure as an alternative gas chromatographic procedure has been added;

— the estimates for the repeatability limits (r) and the reproducibility limits (R) has been updated.

A list of all parts in the ISO 10362 series can be found on the ISO website.

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.

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Introduction

This document may be considered as part of a set of standards which describes the determination of total and nicotine-free dry particulate matter (NFDPM) in total particulate matter from the mainstream smoke. The set comprises ISO 3308, ISO 3402, ISO 4387, ISO 8243, ISO 10315 and this document.

Annex A provides information about the use of this method in conjunction or simultaneously with the gas-chromatographic method of nicotine determination described in ISO 10315.

A bibliography is provided.

No machine smoking regime can represent all human smoking behaviour:

— it is recommended that cigarettes also be tested under conditions of a different intensity of machine smoking than those specified in this document;

— machine smoking testing is useful to characterize cigarette emissions for design and regulatory purposes, but communication of machine measurements to smokers can result in misunderstandings about differences in exposure and risk across brands;

— smoke emission data from machine measurements may be used as inputs for product hazard assessment, but they are not intended to be nor are they valid as measures of human exposure or risks. Communicating differences between products in machine measurements as differences in exposure or risk is a misuse of testing using ISO standards.

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Cigarettes — Determination of water in total particulate matter from the mainstream smoke —

Part 1: Gas-chromatographic method

1 Scope

This document specifies a method for the gas-chromatographic determination of water in total particulate matter from the mainstream smoke. The smoking of cigarettes and collection of mainstream smoke are normally carried out in accordance with ISO 4387. However, the method of this document is also applicable to the determination of water in total particulate matter from the mainstream smoke obtained by non-standard smoking.

NOTE In countries not in a position to use the gas-chromatographic method, the determination of water in total particulate matter from the mainstream smoke is performed using the Karl Fischer method (see ISO 10362-2). In such cases, values obtained for water in total particulate matter from the mainstream smoke are used with the addition of a note made in the expression of the results.

2 Normative reference

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 3696:1987, *Water for analytical laboratory use — Specification and test methods*

ISO 4387, *Cigarettes — Determination of total and nicotine-free dry particulate matter using a routine analytical smoking machine*

3 Terms and definitions

No terms and definitions are listed in this document.

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

— ISO Online browsing platform: available at https://www.iso.org/obp

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

4 Principle

The total particulate matter from the mainstream smoke is dissolved in a solvent containing an internal standard. The water content of an aliquot of the solution is determined by gas chromatography, and the water content of the whole of the total particulate matter from the mainstream smoke is calculated.

5 Reagents

Use only reagents of recognized analytical reagent grade.

5.1 Carrier gas, helium or nitrogen (see note in 7.2) or hydrogen (see note in 8.4).

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