
Cigarettes — Determination of menthol in smoke condensates — Gas- chromatographic method

*Cigarettes — Dosage du menthol dans les condensats de fumée —
Méthode par chromatographie en phase gazeuse*





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Foreword

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 13110 was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products*.

Introduction

No machine smoking regimen 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 International Standard;
- 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.

Cigarettes — Determination of menthol in smoke condensates — Gas-chromatographic method

1 Scope

This International Standard specifies a method for the gas-chromatographic determination of menthol in the total particulate matter (TPM) of mentholated cigarette smoke condensates. The smoking of cigarettes and the collection of mainstream smoke are carried out in accordance with ISO 4387 with some exceptions (see Annex A).

Encapsulated menthol in specific products may lead to specific handling not described in this International Standard.

2 Normative references

The following referenced documents are indispensable for the application 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 4387, *Cigarettes — Determination of total and nicotine-free dry particulate matter using a routine analytical smoking machine*

ISO 8243, *Cigarettes — Sampling*

3 Principle

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

4 Reagents

Use only reagents of recognized analytical grade.

4.1 Carrier gas: helium, nitrogen or hydrogen of high purity.

4.2 Auxiliary gases: air and hydrogen of high purity for the flame ionization detector.

4.3 Propan-2-ol, methanol or ethanol may also be used.

4.4 Internal standard: *n*-heptadecane (of purity at least 99 %). Other appropriate internal standards (such as, but not limited to, carvone, anethole) may be used after assessment of their stability, purity and confirmation that the internal standard does not co-elute with other components of the smoke extract from the gas chromatographic column.

The peak area of internal standard in the smoke extract of samples and standards should be consistent. In cases where inconsistencies are found, analysis of an extraction of a smoke sample without the internal standard in the extraction solution should be performed to confirm the absence of a peak in the smoke extract eluting at the same time as the internal standard.