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Tobacco and tobacco products — Monitor test piece for smoking machine — Requirements and use

Tabac et produits du tabac — Éprouvette de contrôle pour machine à fumer — Exigences et utilisation

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Foreword

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

This fourth edition cancels and replaces the third edition (ISO 16055:2019), which has been technically revised.

The main changes compared to the previous edition are as follows:

— the title and scope have been modified by adding “for smoking” machine;

— the former Annex A (Control charts) has been deleted and the subsequent annex has been moved;

— a reference to ISO 7870-2 has been added in place of the omitted Annex A.

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Tobacco and tobacco products — Monitor test piece for smoking machine — Requirements and use

1 Scope

This document describes the requirements for a monitor test piece for smoking machine as well as its use.

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 3308, *Routine analytical cigarette-smoking machine — Definitions and standard conditions*

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

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

ISO 7870-2, *Control charts — Part 2: Shewhart control charts*

ISO 8454, *Cigarettes — Determination of carbon monoxide in the vapour phase of cigarette smoke — NDIR method*

ISO 10315, *Cigarettes — Determination of nicotine in total particulate matter from the mainstream smoke — Gas-chromatographic method*

ISO 10362-1, *Cigarettes — Determination of water in total particulate matter from the mainstream smoke — Part 1: Gas-chromatographic method*

ISO 10362-2, *Cigarettes — Determination of water in smoke condensates — Part 2: Karl Fischer method*

ISO 20778, *Cigarettes — Routine analytical cigarette smoking machine — Definitions and standard conditions with an intense smoking regime*

ISO 20779, *Cigarettes — Generation and collection of total particulate matter using a routine analytical smoking machine with an intense smoking regime*

ISO 22253, *Cigarettes — Determination of nicotine in total particulate matter from the mainstream smoke with an intense smoking regime — Gas-chromatographic method*

ISO 22947, *Cigarettes — Determination of carbon monoxide in the vapour phase of cigarette smoke with an intense smoking regime — NDIR method*

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/

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3.1
monitor test piece
sample produced for a specific test purpose, validated to fulfil requirements within specified tolerances and intended to be used for laboratory purposes only and labelled to clearly indicate that it is not for human use

Note 1 to entry: A monitor test piece is a sample taken from a batch of cigarettes that show the greatest homogeneity with regard to their physical, chemical and smoke yield characteristics.

3.2
analysis value
result of a smoking test and analysis carried out following ISO 4387, ISO 8454, ISO 10315 and ISO 10362-1 (or ISO 10362-2) or, for intense smoking, following ISO 20779, ISO 22947 and ISO 22253, respectively

4 Requirements

4.1 The monitor test pieces shall be produced from one production batch.

4.2 The number of monitor test pieces produced shall be sufficient to cover the needs of a period of at least two years.

4.3 For reasons of homogeneity, the cut tobacco used shall be taken from one well-mixed batch (if possible, it is advisable to use a single grade of tobacco with no addition of further materials, such as stems, humectants or flavours, to avoid unnecessary heterogeneity of the blend).

4.4 The non-tobacco materials used, such as cigarette paper and filters, shall be taken from one production batch and strict quality-control measures shall be applied during the production of the filters.

Recommended specifications for the production of the monitor test piece are given in Annex A.

The requirements shall include a stable yield for carbon monoxide which is best obtained with a non-ventilated filter. Therefore, the recommendation is that the monitor test piece is unventilated.

If it is necessary to use humectants for the tobacco, only glycerol is allowed. Propylene glycol cannot be used due to its high vapour pressure, which can lead to uncontrolled (undetected) loss of mass during conditioning.

4.5 The production tolerances on tobacco mass, circumference and draw resistance of the monitor test piece shall be controlled as precisely as possible.

It is normally necessary to modify production practices to obtain the required consistency in physical, chemical and smoke yields of the monitor test pieces (see example for CORESTA Monitor Test Piece in Table A.2).

Mass control is critical in the production of a reliable monitor test piece. Excessive mass variation contributes to unacceptable variation in smoke yields.

4.6 The monitor test pieces in a lot shall show consistent values for the content of nicotine-free dry particulate matter, nicotine and carbon monoxide in their smoke yields under the use of the smoking regime specified in ISO 3308 and for the content of nicotine and carbon monoxide under the use of smoking regime specified in ISO 20778. This consistency shall be assessed by means of a comparative study of sufficient size; the size chosen depending on whether the monitor is for local or broader use (see ISO 5725-2).

4.7 The packaged monitor test pieces shall be stored at a temperature below or equal to +4 °C until they are to be used.

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