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Tobacco and tobacco products — Monitor test piece — Requirements and use

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National foreword

This British Standard is the UK implementation of ISO 16055:2012. It supersedes BS ISO 16055:2003 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee AW/40, Tobacco and tobacco products.

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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ISBN 978 0 580 76148 5

ICS 65.160

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 31 December 2012.

Amendments issued since publication

Date	Text affected
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INTERNATIONAL STANDARD

ISO
16055

Second edition
2012-12-15

Tobacco and tobacco products — Monitor test piece — Requirements and use

*Tabac et produits du tabac — Éprouvette de contrôle — Exigences
et utilisation*



Reference number
ISO 16055:2012(E)
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

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.

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.

ISO 16055 was prepared by Technical Committee ISO/TC 126, *Tobacco and tobacco products*.

This second edition cancels and replaces the first edition (ISO 16055:2003), which has been technically revised.

Tobacco and tobacco products — Monitor test piece — Requirements and use

1 Scope

This International Standard describes the requirements for a monitor test piece as well as its use.

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 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 7870-1, *Control charts — General guide and introduction*

ISO 7873, *Control charts for arithmetic average with warning limits*

ISO 8258:1991, *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 smoke condensates — Gas-chromatographic method*

ISO 10362-1, *Cigarettes — Determination of water in smoke condensates — Part 1: Gas-chromatographic method*

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

3 Terms and definitions

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

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, based on the testing of 5 or 20 items (depending on the type of smoking machine used), of a smoking test and analysis carried out in accordance with ISO 4387, ISO 8454, ISO 10315 and ISO 10362-1 (or ISO 10362-2)

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 to be found in [Annex B](#).

The requirements shall now 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 may 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 will normally be necessary to increase the quality-control measures and to decrease the production machine speed to obtain the required consistency in physical, chemical and smoke yields of the monitor test pieces. Mass control is critical in the production of a reliable monitor test piece. Excessive mass variation contributes to unacceptable variation in smoke yields. The standard deviation of mass of individual monitor test piece must be controlled to below 16 mg.

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. 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.

NOTE Other reference standards in the tobacco field require a storage temperature below -16 °C for reasons of hygiene. Normally, a storage temperature of +4 °C is sufficient for monitor test pieces.

4.8 The product design shall ensure that the smoke yields (nicotine-free dry particulate matter, nicotine and carbon monoxide) are sufficiently high per monitor test piece (approximately 14 mg NFDPM and carbon monoxide, approximately 1,4 mg nicotine) so that the influence from a possible offset in the smoking machine settings can be distinguished from the normal variation of the smoke yields.

4.9 It is essential to make the monitor test piece clearly distinguishable from commercial cigarettes. The monitor test pieces shall be packed in hard boxes of 20 which should be carrying a text.

EXAMPLE CORESTA approved, Monitor No. X, for non-consumer laboratory purposes only. Not a commercial product [date of production].

5 Testing

Testing of the lot, including determination of the values for carbon monoxide, nicotine-free dry particulate matter and nicotine in the smoke, shall be carried out in accordance with ISO 8454, ISO 4387,