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BSI Standards Publication

Water pipe tobacco — Determination of total collected matter and nicotine using a water pipe tobacco smoking machine

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National foreword

This Published Document is the UK implementation of ISO/TS 22487:2019.

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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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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 of 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 www.iso.org/iso/foreword.html.

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

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.

Introduction

Tobacco smoke is a complex mixture consisting of many individual chemical constituents. These compounds exist as gases, vapours and condensed aerosol particles. Additionally, various rapid ageing processes, together with diffusional and intersolubility effects, start occurring immediately after the formation of the smoke which further complicates its composition. These processes and effects are particularly relevant to water pipe tobacco smoke where the smoke ages and passes through a water trap before it reaches the smoker.

Historically, when tobacco products are smoked in a laboratory setting, the particulate matter in smoke is collected on a glass fibre filter and this approach has been followed in this document for water pipe tobacco smoking.

The parameters used for "puffing" on the laboratory water pipe used in this document are based on published studies of human behaviour and data reported to the ISO/TC 126. It is convenient to use the term "puffing", however it is, in strict physiological terms, incorrect. Smokers of cigarettes and many other tobacco products use a two-step process to draw the smoke from the product into the mouth (the puff), followed usually by inhalation of ambient air into the lungs through either the nose or mouth. Smokers of water pipes use a one-step process to inhale smoke directly into the lungs.

It is important to note that no machine smoking regime can represent all human smoking behaviour:

— machine smoking testing is useful to characterize water pipe tobacco 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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TECHNICAL SPECIFICATION **ISO/TS 22487:2019**

Water pipe tobacco — Determination of total collected matter and nicotine using a water pipe tobacco smoking machine

1 Scope

This document specifies methods for the determination of total collected matter and for the subsequent determination of nicotine present in the smoke from water pipe tobacco generated and collected using a water pipe tobacco smoking machine.

This document is only applicable for devices known as “arghile”, “hookah”, “nargile” or “shisha” in which tobacco is only heated, not combusted. Other types, such as “Chinese water pipe”, are not covered.

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

ISO 3402, *Tobacco and tobacco products — Atmosphere for conditioning and testing*

ISO 10315, *Cigarettes — Determination of nicotine in smoke condensates — Gas-chromatographic method*

ISO 22486, *Water pipe tobacco smoking machine — Definitions and standard conditions*

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:

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

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

3.1
total collected matter
TCM
portion of the mainstream smoke which is trapped in the *smoke trap* (3.2), expressed as milligrams

3.2
smoke trap
device for collecting such parts of the smoke from a sample as is necessary for determination of specified smoke components

[SOURCE: ISO 3308:2012, 3.15]

3.3
smoking process
use of a smoking machine to smoke the water pipe tobacco from first to final puff