



SLOVENSKI STANDARD
oSIST prEN ISO 24197:2022
01-april-2022

Hlapni proizvodi - Ugotavljanje uparjene mase e-tekočine in zbrane mase aerosolov (ISO/DIS 24197:2022)

Vapour products - Determination of e-liquid vaporised mass and aerosol collected mass (ISO/DIS 24197:2022)

Dampfprodukte - Bestimmung verdampfter E-Liquid-Masse und gesammelter Aerosolmasse (ISO/DIS 24197:2022)

Produits de vapotage - Détermination de la masse de e-liquide vaporisé et de la masse d'aérosol collecté (ISO/DIS 24197:2022)

Ta slovenski standard je istoveten z: prEN ISO 24197

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ICS:

65.160	Tobak, tobačni izdelki in oprema	Tobacco, tobacco products and related equipment
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Vapour products — Determination of e-liquid vaporised mass and aerosol collected mass

ICS: 65.160

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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).

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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*, Subcommittee SC 3, *Vape and vapour 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.

2022

Introduction

In many countries regulation of vapour products require reporting of aerosol collected mass (ACM) and E-liquid vaporized mass (EVM) measurements in emissions. Therefore, there is a necessity to have an International Standard in place to get reliable/comparable data on ACM and EVM in electronic cigarette emissions.

The method in this document is based upon the CORESTA recommended method (CRM) 84^[1], which was written on the basis of the results obtained from interlaboratory studies conducted in 2015 and 2019 involving 18 and 11 laboratories, respectively.

This document has been developed to describe the procedures used to measure the amount of ACM and EVM in the aerosol from vapour products utilizing a gravimetric method. The experimental design parameters^{[2][3]} used to collect the aerosolised vapour should be evaluated and documented for each analysis.

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Vapour products — Determination of e-liquid vaporised mass and aerosol collected mass

1 Scope

This document defines the method of measurement of the masses of e-liquid vaporised and the aerosol collected from vapour product(s).

It does not specify the vapour product(s), the vapour product(s) operational settings or, e-liquid to be used.

NOTE Application of this document can be required as a preliminary step for subsequent analyses.

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 20768, *Vapour products — Routine analytical vaping 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://standards.iteh.ai/catalog/standards/sist/d5267b5f-7162-4894-91db-fab1734bb477/osist-pr-en-iso-24197-2022>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

aerosol collected mass

ACM

mass of aerosol collected on a glass fibre filter pad resulting from the operation of a vapour product by a routine analytical vaping machine after a defined number of puffs

Note 1 to entry: Routine analytical vaping machine is described in ISO 20768.

3.2

puff block

finite series of sequential puffs as defined by the user or by the test request

EXAMPLE Puff block 1: puffs 1 to 50, puff block 2: puffs 51 to 100, puff block 3: puffs 101 to 150

3.3

e-liquid vaporised mass

EVM

mass of e-liquid transferred from the vapour product to the aerosol

Note 1 to entry: The term “vapour product mass loss” or “mass loss” refers to the e-liquid vaporised mass.

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3.4

glass fibre filter pad overload

physical capacity of the glass fibre filter pad exceeded, which leads to a situation where the (volume of) aerosol condensate is no longer retained by the glass fibre filter pad (trap) or can be introduced into the glass fibre filter pad (be trapped)

Note 1 to entry: The glass fibre filter pad overloading is further described in [Annex A](#).

4 Principle

Aerosol is generated from vapour products by using a routine analytical vaping machine according to ISO 20768. The vapour products generate an aerosol from the e-liquid, which allows the gravimetric measurement of e-liquid vaporised mass and the aerosol collected mass, respectively.

5 Apparatus

Usual laboratory apparatus and, in particular, the following.

- 5.1 **Vaping machine**, according to ISO 20768
- 5.2 **Analytical balance**, be precise at a minimum of 1 mg with a display precision of 0,1 mg
- 5.3 **Soap bubble flow meter**, suitable to confirm the (puff) volume of 55 ml
- 5.4 **Glass fibre filter pad**, with specifications according to [Annex B](#)

6 Procedure

6.1 General

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EVM is calculated from the vapour product mass ²¹⁶³ loss due to aerosol generations, while ACM is calculated from the aerosol generated using a fixed number of puffs and puff blocks following standard operational settings and environmental conditions according to ISO 20768.

Prior to vaping, each aerosol collection system used should be checked to ensure that there are no leaks and that the correct puff volume is obtained. Both leak and puff volume checks should be performed according to the vaping machine manufacturer's recommendations. The amount of aerosol generated depends on the nature of the vapour product, operational settings and the e-liquid. It is highly recommended to perform a trapping efficiency study to verify the glass fibre filter pad has not been overloaded. Trapping efficiency is described in more detail in [Annex A](#).

6.2 Preparation

6.2.1 Vapour products

All the vapour products to be tested should be stored at room temperature. Vapour products with rechargeable batteries shall be fully charged before the test and be operated in accordance with the manufacturer recommendations.

6.2.2 Filter pad handling

The handling of the filter pad shall be done according to the following laboratory practises:

- Wear proper gloves (powder free) for all operations to prevent contamination;