SLOVENSKI STANDARD
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Zahteve in preskusne metode za elektronske cigarete

Requirements and test methods for electronic cigarette devices

Anforderungen und Prüfverfahren für elektrische Zigarettengeräte

Exigences et méthodes d'essai relatives aux cigarettes électroniques

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65.160	Tobak, tobačni izdelki in oprema	Tobacco, tobacco products and related equipment

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (CEN/TS 17287:2019) has been prepared by Technical Committee CEN/TC 437 “Electronic cigarettes and e-liquids”, the secretariat of which is held by AFNOR.

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Introduction

Electronic cigarettes, also called e-cigarettes, electronic cigarette devices or electronic nicotine vapor delivery systems are usually battery-operated devices that people use to inhale an aerosol, which typically contains nicotine (though not always), flavourings, and other chemicals. The vapor is generated by heating a fluid often called e-liquid.

This document offers definitions, recommendation, references to other existing standards as well as best practice solutions like test methods to minimize the risk for the consumer using e-cigarette devices. Where no reference methods or standards could be identified, it is essential to further investigate the need for the development of such methods.

The recommendations given in this document are relevant to all the various product types currently available, as well as to those that will be developed. Not all elements of these recommendations will apply to every type of product, but the definitions may be used to identify recommendations for specific products, or parts of products, within this diverse sector.

In the absence of national regulations this standard can provide state of the art guidance for safe e-cigarettes and e-liquids.

1 Scope

This document is applicable to electronic cigarettes and similar vapour producing devices intended for the production of aerosol from e-liquids for consumption by inhalation. It is applicable to devices intended for use with or without nicotine content in the aerosol produced. This standard is also applicable to e-liquid containers, filling mechanisms and accessories, electrical and other, intended for use with electronic cigarettes and similar vapour producing devices.

This standard specifies the minimum safety and technical requirements for electronic cigarette devices, e-liquid containers, and associated accessories when operated and maintained in the manner prescribed by the manufacturer.

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.

EN 862, *Packaging — Child-resistant packaging — Requirements and testing procedures for non-reclosable packages for non-pharmaceutical products*

EN 1186 (all parts), *Materials and articles in contact with foodstuffs — Plastics*

EN 14401, *Rigid plastics containers — Methods to test the effectiveness of closures*

EN 50581, *Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances*

EN 55014 (all parts), *Electromagnetic compatibility — Requirements for household appliances, electronic tools and similar apparatus*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1)*

EN 60335-2-29, *Household and similar electrical appliances — Safety — Part 2-29: Particular requirements for battery chargers (IEC 60335-2-29)*

EN 60950-1, *Information technology equipment — Safety — Part 1: General requirements (IEC 60950-1)*

EN 61000-3-2, *Electromagnetic compatibility (EMC) — Part 3-2: Limits — Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) (IEC 61000-3-2)*

EN 61000-3-3, *Electromagnetic compatibility (EMC) — Part 3-3: Limits — Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current <= 16 A per phase and not subject to conditional connection (IEC 61000-3-3)*

EN 61558-1, *Safety of power transformers, power supplies, reactors and similar products — Part 1: General requirements and tests (IEC 61558-1)*

EN 61558-2-16, *Safety of transformers, reactors, power supply units and similar products for supply voltages up to 1 100 V — Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units (IEC 61558-2-16)*

EN 62133, *Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications (IEC 62133)*

EN 62233, *Measurement methods for electromagnetic fields of household appliances and similar apparatus with regard to human exposure (IEC 62233)*

EN 62680-3, *Universal serial bus interfaces for data and power — Part 3: USB battery charging specification, Revision 1.2 (IEC 62680-3)*

EN 82079-1, *Preparation of instructions for use — Structuring, content and presentation — Part 1: General principles and detailed requirements (IEC 82079-1)*

EN ISO 8317, *Child-resistant packaging — Requirements and testing procedures for reclosable packages (ISO 8317)*

ISO 28219, *Packaging — Labelling and direct product marking with linear bar code and two-dimensional symbols*

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:

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

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

3.1
electronic cigarette
e-cigarette
electronic cigarette device
e-cigarette device
product, that vaporises e-liquid to generate an inhalable aerosol carried by air drawn through the device by the user

Note 1 to entry: Electronic cigarette is also referred to as e-cig, vapour product, personal vaporiser or ENDS/ENNDS.

Note 2 to entry: Electronic cigarette differs from tobacco products in that they do not contain tobacco.

3.2
e-liquid container
bottle or container which contains the e-liquid for filling the e-liquid reservoir

3.3
e-liquid
base liquid, which may or may not contain nicotine and/or additives, intended for transformation into an aerosol by an electronic cigarette

3.4
power unit
unit providing electrical power to the atomizer, usually containing battery and electronic control unit

3.5
e-liquid reservoir
component for holding e-liquid and supplying it to the atomizer

Note 1 to entry: E-liquid reservoir also refers to tank or reservoir.

3.6
cartridge
e-liquid container that can be loaded directly into an e-cigarette, which can be disposable or reusable

3.7
filling mechanism
part of the e-liquid reservoir through which e-liquid is intended to be filled, and any closures and additional features associated with the filling operation

3.8
atomizer head
unit to transform e-liquid into aerosol

3.9
atomizer
unit consisting of an atomizer head connected to the e-liquid reservoir

3.10
mouthpiece
part of the e-cigarette with contact to the mouth through which the user draws the aerosol

Note 1 to entry: Mouthpiece might also be referred to as drip tip.

4 E-cigarettes and its components

4.1 Principle

E-cigarette devices may come in a wide variation in terms of design, but all of them share common components:

a) a power unit delivering the needed energy to the system;

b) an atomizer generating the aerosol;

c) an e-liquid reservoir (tank) to contain an e-liquid;

d) a mouthpiece through which the aerosol is drawn out of the e-cigarette device.

4.2 General requirements

E-cigarette devices and components when separately supplied shall fulfil the general applicable requirements of EN 60335-1.

The compliance of the materials used in components of e-cigarette devices shall be documented according to EN 50581.

The safety and electromagnetic compatibility (EMC) of the e-cigarettes devices shall be in accordance with EN 60335-1, EN 62233, EN 55014-1 and EN 55014-2 respectively.

Additionally if an e-cigarette device is sold with a wall plug adaptor, EN 61000-3-2 and EN 61000-3-3 shall also be complied with.

Assembly and disassembly shall be possible in such a way that the risk of any malfunction of the e-cigarette device is minimized.

Specific requirements to be fulfilled are described in this standard.

4.3 Power unit

4.3.1 General

Where the power unit uses a proprietary connection to the atomizer the electrical output characteristics and physical characteristics of the power unit shall be suitable for atomizers using that connection.

Where the power unit is constructed with a connection described in an international agreed standard, it shall be marked to define electrical and mechanical compatibility. If a non-standardized connection is used, the electrical and mechanical compatibility shall be clearly described in the product's instruction manual with appropriate warnings.

The power unit shall be directly marked to specify the compatibility, normally in terms of minimum resistance and the supplied power [W] range that is allowed to be applied to the connected atomizer.

4.3.2 Batteries

Where batteries contain alkaline or other non-acid electrolytes, these shall be in compliance with EN 62133.

Where other batteries or energy sources are used, these shall be in compliance with relevant safety standard(s) where available. The minimum safety requirement is that batteries and energy sources shall be designed and constructed so that they are safe under conditions of both intended use and of reasonably foreseeable misuse. Batteries and energy sources subjected to intended use shall continue to be functional in all aspects during their lifetime. Batteries and energy sources may fail to function under reasonably foreseeable misuse, but shall not present significant hazards in doing so.

4.3.3 Charging unit

Charging units intended to be used for e-cigarette devices shall be in compliance with EN 60335-2-29, EN 61558-1, EN 61558-2-16 or EN 60950-1. Charging circuitry shall be designed in compliance with EN 62133.

In addition, e-cigarette devices and charging units utilising a USB socket for charging shall be in compliance with EN 62680-3.

4.4 Atomizer

Where part of the atomizer comprises of components that come into contact with e-liquid, the materials used shall:

— be capable of providing the insulating properties required at the foreseeable voltages and currents used;

— be capable of resisting the maximum heater temperature or maximum heater power the atomizer will operate to;

— be safe under conditions of intended use and reasonably foreseeable misuse;

— be chemically resistant to the foreseeable range of flavourings and chemicals used in e-liquids;

— not be of adverse influence to microbiological safety of e-liquid.

Atomizers shall not transfer their constituents to the content of e-liquid in quantities which change the composition of the e-liquid or the aerosol and thereby significantly increase the risk for the consumer.

NOTE 1 Examples of suitable plastics include EN 1186 food contact grade, temperature and chemically resistant plastics.

Where the atomizer uses a proprietary connection to the power unit the manufacturer shall ensure that the electrical and physical characteristics of the atomizer, in particular its heating element, are in every way compatible with the electrical and physical specifications of the power unit using that connection.

In other cases the atomizer shall be directly marked to specify the compatibility, normally in terms of resistance and the recommended power [W] range that is allowed to be applied by the power unit and optionally the abbreviation of the coil material(s) (e.g. 0,8 Ω 15 – 35 W SS). The abbreviation(s) need(s) to be explained in the instruction manual. These specifications as well as other parameters (when applicable) such as temperature range, power settings, etc. shall be further described on the product packaging and/or in the instruction manual.

NOTE 2 The following abbreviations are often used: "SS" for Stainless Steel, "Ni" for Nickel, "Ti" for Titanium.

4.5 E-liquid reservoir

The materials used in the construction of the e-liquid reservoir shall be manufactured in compliance with good manufacturing practice so that they do not change the composition of the e-liquid and thereby significantly increase the risk for the consumer.

The materials used in the construction of the e-liquid reservoir shall be chemically resistant to the foreseeable range of flavourings and chemicals used in e-liquids.

E-liquid reservoir (tank) shall ensure microbiological and bacterial safety of the tank content.

The volume of the e-liquid reservoir shall be tested according to Annex B.

The e-liquid reservoir shall be constructed in such a way that it is resistant to breakage and leakage of its contents when tested according Annex A.

4.6 Mouthpiece (drip tip)

The materials used in the construction mouthpiece shall be chemically resistant to the foreseeable range of flavourings and chemicals used in e-liquids.

The mouthpiece material shall not be known to be likely to cause irritation or any other adverse effects to health.

The mouthpiece material used shall withstand the cleaning agents and procedures recommended by the manufacturer.

The mouthpiece shall be constructed such that it is free of sharp corners or sharp edges.

Mouthpieces shall have a means of attaching firmly to the e-liquid reservoir or atomiser to prevent them being accidentally removed during vaping and presenting a choking hazard.

4.7 Child resistance

The e-cigarette device shall be child-resistant.

The packaging shall be child-resistant and in accordance with EN 862 or EN ISO 8317.