
Textiles — Determination of antiviral activity of textile products

Textiles — Détermination de l'activité virucide de produits textiles



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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 38, *Textiles*.

Introduction

Recently, along with the global improvement in the level of living, consumers are showing the trend to seek healthcare or health protective products. Also, an increase in the people's interest for protection against epidemic diseases has been noted, as the overcrowded commuting train car where the commuters experience every day, the hospitals, nursing homes, etc.

Being supported by the processing technology of textile products to provide a high performance which has been highly developed recently, the health protective and hygiene relating products have been advancing into the market.

Because those products are relatively new products and included the technical aspects out of textile technology, the testing methods have been developed by the individual producers to evaluate the product performance. That has resulted in inexistence of a unified test method, hindering for both consumers and producers a true explanation or understanding of those high functional products.

The antiviral product is one of those products and includes the technical fields of the textile technology and the biotechnology.

The demand to establish the international standard has been growing in the consumers, retailers, producers, etc. as the stakeholders in the market.

Antiviral textile products are textiles capable of reducing the number of infective virus particles that contact the surface of the textile. This standard provides a quantitative test method to assess the antiviral performance of such products.

The data obtained in objective manner by this standard give the common knowledge to all the stakeholders such as consumers, producers, retailers, etc. to understand the correct performance of the antiviral textile products.

There are two methods to quantify the number of infective virus, as infective virus titre in this standard, which are the plaque method and the TCID₅₀ method. The method used can be selected by the experience and the convenience of each testing house. Any appropriate cellular system can be used and that the testing conditions when used should be reported.

Textiles — Determination of antiviral activity of textile products

1 Scope

This International Standard specifies testing methods for the determination of the antiviral activity of the textile products. The textile products include woven and knitted fabrics, fibres, yarns, braids, etc.

Viruses used in this International Standard are as follows:

- one of enveloped viruses, an influenza virus, which is an infective virus in humans that causes respiratory tract infection;
- one of non-enveloped viruses, a feline calicivirus, which is one of surrogates of noroviruses which are important enteric pathogens.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 105-F02, *Textiles — Tests for colour fastness — Part F02: Specification for cotton and viscose adjacent fabrics*

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

ISO 6330, *Textiles — Domestic washing and drying procedures for textile testing*

3 Terms and definitions

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

3.1

virus

has no cell and consists of the gene material enclosed by the shell of the protein, it can replicate in the specific host cells

3.2

virus activity

ability to replicate in the specific host cells

3.3

antiviral property

property to give the morphological change or structural damage to the surface protein of virus

Note 1 to entry: As the result, the damaged virus loses the fitting to the receptor of host cell and reduces the virus activity. Depending on the type of molecules the property can also be an alteration of nucleic acids. In addition to enveloped viruses there is an alteration of envelope as well.

Note 2 to entry: It is not necessarily to imply that the change of antigenic response or the change of constituent element is the reduction of virus infectivity.