

**Cosmetics - Microbiology - Enumeration of yeast and
mould (ISO 16212:2017 + ISO 16212:2017/Amd 1:2022)**

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN ISO 16212:2017+A1:2022 sisaldab Euroopa standardi EN ISO 16212:2017 ja selle muudatuse A1:2022 ingliskeelset teksti.	This Estonian standard EVS-EN ISO 16212:2017+A1:2022 consists of the English text of the European standard EN ISO 16212:2017 and its amendment A1:2022.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 05.07.2017, muudatus A1 28.09.2022.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 05.07.2017, for A1 28.09.2022.
Muudatusega A1 lisatud või muudetud teksti algus ja lõpp on tekstis tähistatud sümbolitega A1 A1 . Standard on kättesaadav Eesti Standardimis- ja Akrediteerimiskeskusest.	The start and finish of text introduced or altered by amendment A1 is indicated in the text by tags A1 A1 . The standard is available from the Estonian Centre for Standardisation and Accreditation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 07.100.40

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardimis- ja Akrediteerimiskeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardimis- ja Akrediteerimiskeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autoriõiguse kaitse kohta, võtke palun ühendust Eesti Standardimis- ja Akrediteerimiskeskusega: Koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation and Accreditation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation and Accreditation.

If you have any questions about standards copyright protection, please contact the Estonian Centre for Standardisation and Accreditation:

Homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

**Cosmetics - Microbiology - Enumeration of yeast and
mould (ISO 16212:2017 + ISO 16212:2017/Amd 1:2022)**

Cosmétiques - Microbiologie - Dénombrement des
levures et des moisissures (ISO 16212:2017 + ISO
16212:2017/Amd 1:2022)

Kosmetische Mittel - Mikrobiologie - Zählung von
Hefen und Schimmelpilzen (ISO 16212:2017 + ISO
16212:2017/Amd 1:2022)

This European Standard was approved by CEN on 26 April 2017. Amendment A1 was approved by CEN on 9 September 2022.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard and its amendment the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard and its Amendment A1 exist in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

European foreword

This document (EN ISO 16212:2017) has been prepared by Technical Committee ISO/TC 217 "Cosmetics" in collaboration with Technical Committee CEN/TC 392 "Cosmetics" the secretariat of which is held by AFNOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by January 2018 and conflicting national standards shall be withdrawn at the latest by January 2018.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN ISO 16212:2011.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Endorsement notice

The text of ISO 16212:2017 has been approved by CEN as EN ISO 16212:2017 without any modification.

A1 Amendment A1 European foreword

This document (EN ISO 16212:2017/A1:2022) has been prepared by Technical Committee ISO/TC 217 "Cosmetics" in collaboration with Technical Committee CEN/TC 392 "Cosmetics" the secretariat of which is held by AFNOR.

This Amendment to the European Standard EN ISO 16212:2017 shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by March 2023, and conflicting national standards shall be withdrawn at the latest by March 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

Any feedback and questions on this document should be directed to the users' national standards body/national committee. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Endorsement notice

The text of ISO 16212:2017/Amd 1:2022 has been approved by CEN as EN ISO 16212:2017/A1:2022 without any modification. **A1**

Contents

Page

Foreword	iv
Amendment A1 foreword	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principles	2
4.1 General	2
4.2 Plate count	2
4.3 Membrane filtration	2
5 Diluents, neutralizers and culture media	3
5.1 General	3
5.2 Neutralizing diluents and diluents	3
5.3 Diluent for yeast suspension (tryptone sodium chloride solution)	4
5.4 Culture media	4
6 Apparatus and glassware	5
7 Strain of microorganisms	5
8 Handling of cosmetic products and laboratory samples	5
9 Procedure	6
9.1 General recommendation	6
9.2 Preparation of the initial suspension	6
9.2.1 General	6
9.2.2 Water-miscible products	6
9.2.3 Water-immiscible products	6
9.3 Counting methods	6
9.3.1 Dilutions for counting methods	6
9.3.2 Plate-count methods	6
10 Counting of colonies (plate counts and membrane filtration methods)	7
11 Expression of results	7
11.1 Method of calculation for plate count	7
11.2 Interpretation	8
12 Neutralization of the antifungal properties of the product	10
12.1 General	10
12.2 Preparation of inoculum	10
12.3 Suitability of counting methods	11
12.3.1 Principle	11
12.3.2 Suitability test of the pour-plate method	11
12.3.3 Suitability of the surface spread method	11
12.3.4 Suitability of the membrane filtration method	11
13 Test report	12
Annex A (informative) Other neutralizing diluents	13
Annex B (informative) Other diluents	15
Annex C (informative) Other culture media	16

Annex D (informative) Neutralizers of antifungicidal activity of preservatives and rinsing liquids	18
Bibliography	19

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 on 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 the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 217, *Cosmetics*.

This second edition cancels and replaces the first edition (ISO 16212:2008), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- in the Scope, “see ISO 29621” has been added and the reference has been added to the Bibliography;
- in the Scope, “used” has been changed to “substituted” and “validated” has been changed to “shown to be suitable”;
- in 4.1, “validated” has been changed to “demonstrated”;
- in 4.3, “by a valid method” has been changed to “as described in Clause 12” and “validated procedure” has been replaced by “described procedure”;
- in 5.1, “specifications” has been changed to “instructions”;
- in 5.2.3.1.2, “peptone” has been changed to “peptic digest of animal tissue”;
- in Clause 7, “validation” has been changed to “suitability”;
- in 9.3.2.1, “validated” has been changed to “demonstrated to be suitable”;
- in 9.3.2.3, “prepared as validated” has been changed to “demonstrated to be suitable”;
- in 11.2.1, “validated according to” has been changed to “demonstrated to be suitable for”;

- in 12.3, “validation” has been changed to “suitability”;
- in 12.3.2, instances of “validation” have been changed to “suitability test” and “validated” has been changed to “satisfactory”;
- in 12.3.3, the first instance of “validation” has been changed to “suitability” and the second instance has been changed to “suitability test”; “validated” has been changed to “satisfactory”;
- in 12.3.4, the first instance of “validation” has been changed to “suitability” and the second instance has been changed to “suitability test”; “validated” has been changed to “satisfactory”;
- in Clause 13 f), “validation” has been changed to “suitability”;
- in A.1, B.1 and C.1, “validated” has been changed to “demonstrated to be suitable”.

A1 Amendment A1 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 217, *Cosmetics*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/TC 392, *Cosmetics*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

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. **A1**

Cosmetics — Microbiology — Enumeration of yeast and mould

1 Scope

This document gives general guidelines for enumeration of yeast and mould present in cosmetics by counting the colonies on selective agar medium after aerobic incubation.

In order to ensure product quality and safety for consumers, it is advisable to perform an appropriate microbiological risk analysis to determine the types of cosmetic products to which this document is applicable. Products considered to present a low microbiological risk (see ISO 29621) include those with low water activity or extreme pH values, hydro-alcoholic products, etc.

Because of the large variety of cosmetic products within this field of application, this method might not be suited to some products in every detail (e.g. certain water-immiscible products). Other methods (e.g. automated) can be substituted for the tests presented here provided that their equivalence has been demonstrated or the method has been otherwise shown to be suitable.

Yeast enumerated can be identified using suitable identification tests, for example, tests described in the standards listed in the Bibliography. Mould enumerated can be identified by other appropriate methods, if necessary.

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 21148, *Cosmetics — Microbiology — General instructions for microbiological examination*

EN 12353, *Chemical disinfectants and antiseptics — Preservation of test organisms used for the determination of bactericidal (including Legionella), mycobactericidal, sporicidal, fungicidal and virucidal (including bacteriophages) activity*

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 <http://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1

yeast

single-cell fungus, which multiplies mainly vegetatively by budding, able to grow under the test conditions specified in this document

3.2

mould

mycelium forming microfungus, including spores and conidia, able to grow under the test conditions specified in this document