BSI Standards Publication

Microbiology of the food chain — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination

Part 1: General rules for the preparation of the initial suspension and decimal dilutions

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National foreword

This British Standard is the UK implementation of EN ISO 6887-1:2017+A1:2024. It is identical to ISO 6887-1:2017, incorporating amendment 1:2024. It supersedes BS EN ISO 6887-1:2017, which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to ISO text carry the number of the ISO amendment. For example, text altered by ISO amendment 1 is indicated by ⟩A1⟨.

The UK participation in its preparation was entrusted to Technical Committee AW/9, Microbiology.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 1: General rules for the preparation of the initial suspension and decimal dilutions (ISO 6887-1:2017)

Microbiologie de la chaîne alimentaire - Préparation des échantillons, de la suspension mère et des dilutions décimales en vue de l'examen microbiologique - Partie 1: Règles générales pour la préparation de la suspension mère et des dilutions décimales (ISO 6887-1:2017)

Mikrobiologie der Lebensmittelkette - Vorbereitung von Untersuchungsproben und Herstellung von Erstverdünnungen und von Dezimalverdünnungen für mikrobiologische Untersuchungen - Teil 1: Allgemeine Regeln für die Herstellung von Erstverdünnungen und Dezimalverdünnungen (ISO 6887-1:2017)

This European Standard was approved by CEN on 14 January 2017.

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European foreword

This document (EN ISO 6887-1:2017) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 275 “Food analysis - Horizontal methods” the secretariat of which is held by DIN.

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 October 2017, and conflicting national standards shall be withdrawn at the latest by October 2017.

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European foreword

This document (EN ISO 6887-1:2017/A1:2024) has been prepared by Technical Committee ISO/TC 34 "Food products" in collaboration with Technical Committee CEN/TC 463 “Microbiology of the food chain” 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 2025, and conflicting national standards shall be withdrawn at the latest by January 2025.

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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 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 34, *Food products*, Subcommittee SC 9, *Microbiology*.

This second edition cancels and replaces the first edition (ISO 6887-1:1999), which has been technically revised.

A list of parts in the ISO 6887 series can be found on the ISO website.

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Introduction

Because of the large variety of food and animal feed products, this horizontal method might not be appropriate in every detail for certain products. In this case, different methods which are specific to these products can be used if absolutely necessary for justified technical reasons.

When this document is next reviewed, account will be taken of all information then available regarding the extent to which this horizontal method has been followed and the reasons for deviations from this method in the case of particular products.

The harmonization of test methods cannot be immediate and for certain groups of products, International Standards and/or national standards may already exist that do not comply with this horizontal method. It is hoped that when such standards are reviewed, they will be changed to comply with this document so that eventually, the only remaining departures from this horizontal method will be those necessary for well-established technical reasons.

This document defines the general rules for the preparation of samples, initial suspensions and subsequent dilutions for microbiological examination. The remaining parts of ISO 6887 give specific rules for the preparation of samples and initial suspensions, each covering the variety of food and feed products and environmental samples to which ISO 6887 applies.

For a number of products, it is necessary to take special precautions, especially when preparing the initial suspension, because of the physical state of the product (such as dry products, highly viscous products) or the presence of inhibitory substances (such as spices, high salt content) or the acidity, etc. These are covered in general terms in this document.

Any special diluents or practices required for particular products or microorganisms in specific standard methods take priority over the general rules listed in the ISO 6887 series. These can include the following:

— specific rehydration procedures for foods of low water activity to minimize osmotic shock;

— the use of adequate temperatures to aid suspension of cocoa, gelatine, milk powder, etc.;

— resuscitation procedures for the improved recovery of stressed microorganisms resulting from food processing and storage;

— homogenization procedures and duration specific to certain products (e.g. cereals) and/or to certain determinations (e.g. yeasts and moulds).

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Microbiology of the food chain — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination —

Part 1: General rules for the preparation of the initial suspension and decimal dilutions

WARNING — The use of this document may involve hazardous materials, operations and equipment. It is the responsibility of the user of this document to establish appropriate safety and health practices and to determine the applicability of regulatory limitations before use.

1 Scope

This document defines general rules for the aerobic preparation of the initial suspension and of dilutions for microbiological examinations of products intended for human or animal consumption.

This document is applicable to the general case and other parts apply to specific groups of products as mentioned in the foreword. Some aspects might also be applicable to molecular methods where matrices can be associated with inhibition of the PCR steps and consequently affect the test result.

This document excludes preparation of samples for both enumeration and detection test methods where preparation instructions are detailed in specific International Standards.

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 7218, *Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations*

ISO 11133, *Microbiology of food, animal feed and water — Preparation, production, storage and performance testing of culture media*

〚A1〛 ISO 16140-4:2020, *Microbiology of the food chain — Method validation — Part 4: Protocol for method validation in a single laboratory*

ISO 16140-4:2020/Amd 1:2024, *Microbiology of the food chain — Method validation — Part 4: Protocol for method validation in a single laboratory — Amendment 1: Validation of a larger test portion size for qualitative methods* 〚A1〛

3 Terms and definitions

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

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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
laboratory sample
sample prepared for sending to the laboratory and intended for inspection or testing

[SOURCE: ISO 7002:1986, A.19]

3.2
composite sample
〚A1〛 mixed sample of a number of the same *items* (3.13) of food, animal feed, animals or environment, prepared in or out of the laboratory from which a test portion is taken for examination

Note 1 to entry: See Figure A.1 for an illustration of a composite sample. 〚/A1〛

3.3
pooled sample
〚A1〛 mixed sample of a number of the same items (3.13) of food, animal feed, animals or environment, prepared in or out of the laboratory where the complete mixture is the test portion and is taken as a whole for examination

Note 1 to entry: See Figure A.1 for an illustration of a pooled sample. 〚/A1〛

3.4
test sample
sample prepared from the *laboratory sample* (3.1) according to the procedure specified in the method of test and from which *test portions* (3.5) are taken

Note 1 to entry: Preparation of the laboratory sample before the test portion is taken is infrequently used in microbiological examinations.

[SOURCE: ISO 7002:1986, A.47]

3.5
test portion
measured (volume or mass) representative sample taken from the *laboratory sample* (3.1) for use in the preparation of the *initial suspension* (3.6)

Note 1 to entry: Sometimes preparation of the *laboratory sample* (3.1) is required before the test portion is taken, but this is infrequently used in microbiological examinations.

3.6
initial suspension
primary dilution
suspension, solution or emulsion obtained after a weighed or measured quantity of the product under examination (or of a test sample prepared from the product) has been mixed with, normally, a nine-fold quantity of diluent, allowing large particles, if present, to settle

Note 1 to entry: Nine-fold quantities of diluent are normally used to produce a decimal dilution series, but other ratios may be required for specific purposes, such as to enumerate low numbers.

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