SLOVENSKI STANDARD
oSIST prEN ISO 6887-5:2019

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Mikrobiologija v prehranski verigi - Priprava preskusnih vzorcev, začetna suspenzija in decimalne razredčitve za mikrobiološko preiskavo - 5. del: Specifična pravila za pripravo mleka in mlečnih izdelkov (ISO/DIS 6887-5:2018)

Microbiology of the food chain - Preparation of test samples, initial suspension and decimal dilutions for microbiological examination - Part 5: Specific rules for the preparation of milk and milk products (ISO/DIS 6887-5:2018)

Mikrobiologie von Lebensmitteln und Futtermitteln - Vorbereitung von Untersuchungsproben und Herstellung von Erstverdünnungen und von Dezimalverdünnungen für mikrobiologische Untersuchungen - Teil 5: Spezifische Regeln für die Vorbereitung von Milch und Milcherzeugnissen (ISO/DIS 6887-5:2018)

Microbiologie des aliments - Préparation des échantillons, de la suspension mère et des dilutions décimales en vue de l'examen microbiologique - Partie 5: Règles spécifiques pour la préparation du lait et des produits laitiers (ISO/DIS 6887-5:2018)

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

Part 5:
Specific rules for the preparation of milk and milk products

Microbiologie des aliments — Préparation des échantillons, de la suspension mère et des dilutions décimales en vue de l'examen microbiologique —

Partie 5: Règles spécifiques pour la préparation du lait et des produits laitiers

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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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).

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.

ISO 6887-5 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 9, *Microbiology*.

This second edition cancels and replaces ISO 6887-5:2010, which has been technically revised.

The main changes compared to the previous edition are as follows:

— alignment against ISO 6887 parts 1 to 4;

— cross reference ISO 6887 part 1 where relevant.

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

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

Part 5: Specific rules for the preparation of milk and milk products

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

1 Scope

This part of ISO 6887 specifies rules for the preparation of samples of milk and milk products and their suspensions for microbiological examination when the samples require a different preparation from the general methods specified in ISO 6887-1. ISO 6887-1 defines the general rules for the preparation of the initial suspension and decimal dilutions for microbiological examination.

This part of ISO 6887 excludes preparation of samples for both enumeration and detection test methods where preparation details are specified in the relevant International Standards.

This part of ISO 6887 is applicable to:

a) milk and liquid milk products;

b) dried milk products;

c) cheese;

d) casein and caseinates;

e) butter;

f) ice-cream;

g) custard, desserts and sweet cream;

h) fermented milk, yogurt and sour cream;

i) milk-based infant foods.

2 Normative references

The following referenced documents are indispensable for the application 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 7071/2IDF 50, *Milk and milk products — Guidance on sampling*

ISO 6887-1, *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 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*

3 Terms and definitions

For the purposes of this International Standard, the terms and definitions given in ISO 6887-1 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 https://www.iso.org/obp

4 Principle

The general principles for sample preparation and subsequent steps are detailed in ISO 6887-1; ISO 6887-5 describes specific sample preparation for milk and milk products.

5 Diluents

Follow current laboratory practices as specified in ISO 7218. The composition of culture media and reagents and their preparation are specified in ISO 6887-1 or in the following procedures.

5.1 Basic materials.

See ISO 6887-1.

5.2 Diluents for general use.

Peptone salt solution, buffered peptone water and double-strength buffered peptone water are described in ISO 6887-1.

5.2.1 Quarter-strength Ringer's solution.

5.2.1.1 Composition.

Sodium chloride (NaCl)	2,25 g
Potassium chloride (KCl)	0,105 g
Calcium chloride ($CaCl_2$), anhydrous	0,06 g[a]
Sodium hydrogen carbonate ($NaHCO_3$)	0,05 g
Water	1 000 ml
[a] Alternatively, use 0,12 g of $CaCl_2 \cdot 6H_2O$.	

5.2.1.2 Preparation.

Dissolve the salts in the water. Adjust the pH, if necessary, so that after sterilization it is 6,9 ± 0,2 at 25 °C.

5.2.2 Peptone solution.

5.2.2.1 Composition.

Enzymatic digest of casein	1,0 g
Water	1 000 ml

5.2.2.2 Preparation.

Dissolve the peptone in the water. Adjust the pH, if necessary, so that after sterilization it is 7,0 ± 0,2 at 25 °C

5.2.3 Phosphate buffer solution.

5.2.3.1 Composition.

Potassium dihydrogen phosphate (KH_2PO_4)	42,5 g
Water	1 000 ml

5.2.3.2 Preparation.

Dissolve the salt in 500 ml of water. Adjust the pH, if necessary, so that after sterilization it is 7,2 ± 0,2 at 25 °C. Dilute to 1 000 ml with the remaining water.

Store the stock solution under refrigerated conditions.

Add 1 ml of this stock solution to 1 000 ml of water for use as diluent.

5.3 Diluents for special purposes.

These diluents shall only be used for the preparation of initial suspensions.

5.3.1 Sodium citrate solution.

5.3.1.1 Composition.

Trisodium citrate dihydrate ($Na_3C_6H_5O_7 \cdot 2H_2O$)	20,0 g
Water	1 000 ml

5.3.1.2 Preparation.

Dissolve the salt in water by heating, if necessary, on a hotplate (6.3) at a temperature between 45 °C and 50 °C. Adjust the pH, if necessary, so that after sterilization it is 7,5 ± 0,2 at 25 °C.

5.3.1.3 Application.

This solution is used for cheese and (roller-) dried milk, and some caseinates.

5.3.2 Dipotassium hydrogen phosphate solution.

5.3.2.1 Composition.

Dipotassium hydrogen phosphate (K_2HPO_4)	20,0 g
Water	1 000 ml

5.3.2.2 Preparation.

Dissolve the salt in the water by heating, if necessary, on a hotplate (6.3) at a temperature between 45 °C and 50 °C. For acid whey powder, adjust the pH so that for the primary dilution after sterilization it is 8,4 ± 0,2 at 25 °C. For cheese, roller-dried milk, fermented milk, yogurt, caseinates, and sour cream, adjust the pH so that after sterilization it is 7,5 ± 0,2 at 25 °C.

5.3.2.3 Application.

This solution is used for cheese, (roller-) dried milk, fermented milk, yogurt, some caseinates, dried acid whey, and sour cream.

5.3.3 Dipotassium hydrogen phosphate solution with antifoam agent.

5.3.3.1 Dipotassium hydrogen phosphate solution.

5.3.3.1.1 Composition.

Dipotassium hydrogen phosphate (K_2HPO_4)	20,0 g
Water	1 000 ml

5.3.3.1.2 Preparation.

Dissolve dipotassium hydrogen phosphate in water by heating, if necessary, on a hotplate (6.3) at a temperature between 45 °C and 50 °C.

5.3.3.2 Antifoam stock solution.

5.3.3.2.1 Composition.

Polyethylene glycol 2000	1 g
Water	100 ml

5.3.3.2.2 Preparation.

5.3.3.3 Dissolve the polyethylene glycol 2000 in the water by mixing.

5.3.3.4 Preparation.

Add 1 ml of the antifoam stock solution (5.3.3.2) to 1 l of the K_2HPO_4 solution (5.3.3.1). Adjust the pH so that for the primary dilution of both acid and lactic casein, after sterilization, it is 8,4 ± 0,2 at 25 °C, and for rennet casein, after sterilization, it is 7,5 ± 0,2 at 25 °C.

5.3.3.5 Application.

This solution is used for acid casein, lactic casein and rennet caseins.

5.3.4 Tripolyphosphate solution.

5.3.4.1 Composition.

Sodium tripolyphosphate ($Na_5O_{10}P_3$)	20,0 g
Water	1 000 ml

