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Milk — Enumeration of microorganisms — Plate-loop technique at 30 °C

Lait — Dénombrement des micro-organismes — Méthode de l'anse calibrée en boîtes de Petri à 30 °C

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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 document 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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This document was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF). It is being published jointly by ISO and IDF.

This second edition cancels and replaces the first edition (ISO 8553 | IDF 131:2004), which has been technically revised.

The main changes are as follows:

— the normative references have been updated,

— the description of the procedure has been adapted to that specified by ISO 4833-1,

— the expression of results has been changed to be in accordance with ISO 7218,

— a flow diagram of the main steps of the procedure has been included in Annex A,

— the performance testing of the culture medium, milk plate count agar (MPCA), has been introduced,

— the Bibliography has been updated.

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.

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IDF (the International Dairy Federation) is a non-profit private sector organization representing the interests of various stakeholders in dairying at the global level. IDF members are organized in National Committees, which are national associations composed of representatives of dairy-related national interest groups including dairy farmers, dairy processing industry, dairy suppliers, academics and governments/ food control authorities.

ISO and IDF collaborate closely on all matters of standardization relating to methods of analysis and sampling for milk and milk products. Since 2001, ISO and IDF jointly publish their International Standards using the logos and reference numbers of both organizations.

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The work was carried out by the IDF/ISO Action Team (H24) of the *Standing Committee on Methods for Dairy Microbiology* under the aegis of its project leader Barbara Gerten (DE).

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Introduction

The aerobic plate count (APC) is intended to indicate the level of microorganism in a product.

It is not a measure of the entire population of microorganisms, as is falsely suggested by other frequently used terms such as “total plate count” and “total viable count”. APC is a generic test for microorganisms that grow aerobically at mesophilic temperatures (approximately 20 °C to 45 °C). The APC does not differentiate between different types of microorganisms and includes bacteria as well as yeasts and moulds.

Reference [5] gives an overview of the methods for the direct and indirect assessment of the bacterial content of milk. Results of evaluations of the plate loop technique for determining viable bacterial counts in milk are given in References [6] and [7]. For a comparison of plate loop and agar plate methods for bacteriological examination of manufacturing grade raw milk, see Reference [8].

The main technical changes listed in the Foreword, introduced in this document compared to ISO 8553 | IDF 131:2004, are considered as minor (see ISO 17468).

These technical changes have a minor impact on the performance characteristics of the method.

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Milk — Enumeration of microorganisms — Plate-loop technique at 30 °C

1 Scope

This document specifies the enumeration of microorganisms by the plate-loop technique at 30 °C.

This document is applicable to raw milk and is only applicable to samples that contain microorganisms up to a level of 3×10^5 cfu/ml.

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 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 6887-5, *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 7218, *Microbiology of the food chain — General requirements and guidance for microbiological examinations*

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

3 Terms and definitions

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

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

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

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

3.1
microorganisms
bacteria, yeasts and moulds, usually capable of forming colonies in/on milk plate count agar (MPCA) when a specified test is conducted

Note 1 to entry: Specified tests are given in Clause 9.

4 Principle

A specified quantity of the liquid test sample is picked up by a calibrated inoculating loop. It uses volumetrically calibrated loops for transferring samples instead of decimal dilutions. The calibrated loop is attached to a continuous volume pipette for dispensing and rinsing the sample into an empty Petri dish. It is mixed well with a specified molten culture medium to form a poured plate.

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