



Technical Specification

ISO/TS 11059

IDF/RM 225

Milk and milk products — Method for the enumeration of *Pseudomonas* spp.

*Lait et produits laitiers — Méthode de dénombrement des
Pseudomonas spp.*

**Second edition
2025-12**

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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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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 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/TS 11059 | IDF/RM 225:2009), which has been technically revised.

The main changes are as follows:

- biochemical confirmation tests on oxidase reaction and glucose fermentation test have been aligned with the same confirmation tests used for presumptive *Enterobacteriaceae*;
- the flow diagram in [Annex A](#) giving the main steps of the procedure has been added;
- in [Annex B](#), the criteria for the performance testing of culture media and reagents have been added.

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.

ISO/TS 11059:2025(en)
IDF/RM 225:2025(en)

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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This document was prepared by IDF *Standing Committee on Methods for Dairy Microbiology* and ISO Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*. It is being published jointly by ISO and IDF.

The work was carried out by the IDF/ISO Action Team (H27) of the *Standing Committee on Methods for Dairy Microbiology* under the aegis of its project leader Julie Audy (CA).

Introduction

Pseudomonas spp. are aerobic, Gram-negative, non-spore-forming, flagellated, rod-shaped, catalase-positive bacteria. *Pseudomonas* spp. are a dominant group of psychrotrophic microorganisms associated with the contamination of raw or processed milk limiting the shelf life of fluid milk at 4 °C. The most important species causing spoilage in the dairy sector are from the *P. fluorescens* group including *P. fluorescens*, *P. fragi* and *P. gessardii* subgroups.

Pseudomonas spp. enter raw or processed milk from contaminated water or via biofilms in milking systems or process equipment. *Pseudomonas* spp. grow in raw or processed dairy products during refrigerated storage and some strains produce heat-stable extracellular enzymes (mainly lipases and proteases) causing a wide range of defects from off flavour to gelification (gelation) of ultra-high temperature (UHT) treated products. The enumeration of *Pseudomonas* spp. is used by the dairy sector as microbial indicator to evaluate raw milk quality or to determine a post-pasteurization contamination in processed milk from the milk-processing equipment.

This document is intended to provide general guidance for the examination of products not dealt with by existing International Standards and to be taken into account by organizations preparing microbiological test methods for application to milk and milk products and dairy environmental samples. This guidance will not always be appropriate in every detail for certain products, and for some other products it can be necessary to use different methods, see Reference [7]. Nevertheless, it is hoped that in all cases, every attempt will be made to apply the guidance provided as far as possible and that deviations from it will only be made if absolutely necessary for technical reasons.

The main technical changes listed in the Foreword, introduced in this document compared to ISO/TS 11059 | IDF/RM 225:2009, are considered as minor (see ISO 17468).

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

Milk and milk products — Method for the enumeration of *Pseudomonas* spp.

1 Scope

This document specifies the enumeration of *Pseudomonas* spp. by the colony-count technique.

This document is applicable to:

- milk and milk products;
- environmental samples in the area of dairy production and handling.

The method allows the isolation of all pigmented and non-pigmented psychrotrophic *Pseudomonas* spp.

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

ISO 18593, *Microbiology of the food chain — Horizontal methods for surface sampling*

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

***Pseudomonas* spp.**

species of bacteria of the genus *Pseudomonas* which form colonies in penicillin and pimaricin agar (PPA) at 25 °C and which show a positive oxidase reaction and absence of glucose fermentation