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Dried milk and dried milk products — Determination of bulk density

Lait sec et produits laitiers en poudre — Détermination de la masse volumique

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Foreword

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ISO 8967|IDF 134 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 edition of ISO 8967|IDF 134 cancels and replaces ISO 8967:1992, of which it constitutes a minor revision.

Foreword

IDF (the International Dairy Federation) is a worldwide federation of the dairy sector with a National Committee in every member country. Every National Committee has the right to be represented on the IDF Standing Committees carrying out the technical work. IDF collaborates with ISO in the development of standard methods of analysis and sampling for milk and milk products.

Draft International Standards adopted by the Action Teams and Standing Committees are circulated to the IDF National Committees for voting. Publication as an International Standard requires approval by at least 50 % of the National Committees casting a vote.

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ISO 8967|IDF 134 was prepared by the International Dairy Federation (IDF) and Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*. It is being published jointly by IDF and ISO.

All work was carried out by the Joint ISO/IDF/AOAC Group of Experts on *Physical properties of dried milk products* (E701), under the aegis of its chairman, Mr J. de Vilder (BE).

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Introduction

Different steps during production can influence the volume taken up by a certain mass of milk powder. The most important parameters affecting the volume of milk powder and hence its bulk density (see the definitions in Clause 2) are the dry matter content, the viscosity and the temperature of the concentrate. Also, homogenization of the concentrate and the spray-drying conditions, such as the inlet and outlet temperatures of the air and the peripheral velocity of the atomizer wheel or the pressure during nozzle atomization, are important steps. Special spray-drying conditions, such as recirculation of the fines to the wet zone in the spray drier (straight-through atomization), two-stage drying or rewetting for the production of instant milk powder, also have an influence on the volume.

In an interlaboratory study involving seven laboratories and nine samples, two methods for the determination of bulk density were tested. In one method the cylinder was dropped manually and in the other a mechanical apparatus was used for the tapping. The aim of this work was not only to establish the repeatability and reproducibility of the methods but also to determine the number of tappings needed to achieve reasonably constant volume. From this work it was clear that the mechanical operation gives far better results than the manual operation. For the mechanical test, the same apparatus as that specified in ISO 787-11 was used.