INTERNATIONAL STANDARD

ISO 21543

IDF 201

First edition
2006-09-01

Milk products — Guidelines for the application of near infrared spectrometry

Produits laitiers — Lignes directrices pour l'application de la spectrométrie dans le proche infrarouge

Reference numbers
ISO 21543:2006(E)
IDF 201:2006(E)

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Published in Switzerland

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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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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.

ISO 21543 | IDF 201 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.

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 National Committees for voting. Publication as an International Standard requires approval by at least 50 % of the IDF National Committees casting a vote.

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ISO 21543 | IDF 201 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 Joint ISO-IDF Action Team on *Automated methods*, of the Standing Committee on *Quality assurance, statistics of analytical data and sampling*, under the aegis of its project leader, Mr L.K. Sørensen (DK).

Milk products — Guidelines for the application of near infrared spectrometry

1 Scope

This International Standard provides guidance on use of near infrared spectrometry in the determination of

— the total solids, fat and protein contents in cheese,

— the moisture, fat, protein and lactose contents in dried milk, dried whey and dried butter milk, and

— the moisture, fat, non-fat solids and salt contents in butter.

2 Terms and definitions

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

2.1
near infrared instrument
NIR instrument
proprietary apparatus which, when used under the conditions defined in this International Standard, estimates the mass fractions of the substances specified in Clause 1

2.2
total solids, moisture, non-fat solids, fat, protein, lactose and salt contents
mass fraction of substances determined using the method specified in this International Standard

NOTE These contents are expressed as mass fractions in percent.

3 Principle

The sample is pretreated to obtain a homogeneous test sample representing the chemical composition of the sample material. It is loaded into the sample holder of the NIR spectrometer. The absorbance at wavelengths in the near infrared region is measured and the spectral data are transformed to constituent concentrations by calibration models developed on representative samples from the population to be tested.

4 Reagents

Use only reagents of recognized analytical grade, unless otherwise specified, and distilled or demineralized water or water of equivalent purity.

4.1 **Ethanol**, or other appropriate solvent or detergent mixture, for cleaning re-usable sample cups.