INTERNATIONAL STANDARD

ISO 8262-1

IDF 124-1

Second edition
2005-09-15

Milk products and milk-based foods — Determination of fat content by the Weibull-Berntrop gravimetric method (Reference method) —

Part 1: Infant foods

Produits laitiers et produits à base de lait — Détermination de la teneur en matière grasse par la méthode gravimétrique Weibull-Berntrop (Méthode de référence) —

Partie 1: Aliments pour enfants en bas âge

Reference numbers
ISO 8262-1:2005(E)
IDF 124-1:2005(E)

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

International Dairy Federation
Diamant Building • Boulevard Auguste Reyers 80 • B-1030 Brussels
Tel. + 32 2 733 98 88
Fax + 32 2 733 04 13
E-mail info@fil-idf.org
Web www.fil-idf.org

Published in Switzerland

Contents

Page

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 8262-1|IDF 124-1 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 8262-1|IDF 124-1 cancels and replaces ISO 8262-1:1987, of which it constitutes a minor revision.

ISO 8262|IDF 124 consists of the following parts, under the general title *Milk products and milk-based foods — Determination of fat content by the Weibull-Berntrop gravimetric method (Reference method)*:

— *Part 1: Infant foods*

— *Part 2: Edible ices and ice-mixes*

— *Part 3: Special cases*

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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. IDF shall not be held responsible for identifying any or all such patent rights.

ISO 8262-1 | IDF 124-1 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 *Fat determination* (E 31), under the aegis of its chairman, Mr J. Eisses (NL).

This edition of ISO 8262-1 | IDF 124-1 cancels and replaces IDF 124A:1988, of which it constitutes a minor revision.

ISO 8262 | IDF 124 consists of the following parts, under the general title *Milk products and milk-based foods — Determination of fat content by the Weibull-Berntrop gravimetric method (Reference method)*:

— *Part 1: Infant foods*

— *Part 2: Edible ices and ice-mixes*

— *Part 3: Special cases*

Introduction

This International Standard has been prepared within the framework of producing a series of reference methods, which are harmonized to the greatest possible extent, for the gravimetric determination of the fat content of milk, milk products and milk-based foods. These methods are based on the Röse-Gottlieb (RG) method, or the Weibull-Berntrop (WB) method, or the Schmid-Bondzynski-Ratzlaff (SBR) principle.

For this part of ISO 8262/IDF 124, dealing with milk-based and other types of infant food containing more than 5 % (mass fraction) (dry matter) of starch or dextrin, or vegetable, fruit, meat, etc., a method based on the WB principle has been chosen for the following reasons:

a) the RG procedure is not suitable owing to the high level of the above ingredients, which causes incomplete extraction of the fat and thus gives too low values for the fat content;

b) the SBR procedure is not suitable owing to the generally high content of carbohydrates, which gives rise to ether-extractable compounds in the digestion with acid and thus gives too high values for the fat content;

c) the WB procedure, although it also includes acid digestion, is not adversely affected by the ether-extractable compounds, since the acid digest is filtered and washed, and the dried residue on the filter does not contain compounds that are extractable by light petroleum;

d) the method described is already used for this purpose in many countries and is recommended by the Codex Committee on Methods of Analysis and Sampling.

The original Weibull method was designed for bread; a considerably modified method, as specified in this International Standard, was developed by Berntrop. This version has found wide application for the determination of fat in many types of food product.

Milk products and milk-based foods — Determination of fat content by the Weibull-Berntrop gravimetric method (Reference method) —

Part 1: Infant foods

1 Scope

This part of ISO 8262|IDF 124 specifies the reference method for the determination of the fat content of infant foods to which the Röse-Gottlieb method is not applicable [i.e. those milk-based and other types of infant food that contain more than 5 % (mass fraction) (dry matter) of starch or dextrin, or vegetable, fruit, meat, etc.].

The method is also applicable if the product contains free fatty acids in significant quantities or if hard lumps that do not dissolve completely in ammonia are present in the product.

NOTE Other milk-based infant foods can be examined by the method utilizing the Röse-Gottlieb principle given in ISO 8381. Malto-dextrins without higher molecular dextrins, which are often present in infant foods, do not disturb the RG extraction even when present in high percentages.

2 Terms and definitions

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

2.1
fat content
all the substances determined by the method specified in this part of ISO 8262|IDF 124

NOTE It is expressed as a mass fraction in percent.

3 Principle

A test portion is digested by boiling with dilute hydrochloric acid. The hot digest is filtered through a wetted filter paper to retain fatty substances, then the fat is extracted from the dried filter paper using *n*-hexane or light petroleum. The solvent is removed by distillation or evaporation and the substances extracted are weighed. (This is usually known as the Weibull-Berntrop principle.)

4 Reagents and materials

Use only reagents of recognized analytical grade that leave no appreciable residue when the determination is carried out by the method specified. Use distilled or deionized water, or water of at least equivalent purity.

4.1 Dilute hydrochloric acid, containing approximately 20 % (mass fraction) of HCl, ρ_{20} approximately 1,10 g/ml.

Dilute 100 ml of concentrated hydrochloric acid (ρ_{20} = 1,18 g/ml) with 100 ml of water and mix.