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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
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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8262-1 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, in collaboration with the International Dairy Federation (IDF) and the Association of Analytical Chemists (AOAC) and will also be published by these organizations.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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

Part 1 : Infant foods

0 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 either the Röse-Gottlieb (RG), or the Weibull-Berntrop (WB) or the Schmid-Bondzynski-Ratzlaff (SBR) principle.

For this part of ISO 8262, dealing with milk-based and other types of infant foods containing more than 5 % (*m/m*) (in the dry matter) of starch or dextrin, or vegetable, fruit, meat, etc., a method based on the WB principle has been chosen because

- a) 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, the RG procedure is not suitable;
- b) owing to the generally high content of carbohydrates, which gives rise to ether-extractable compounds in the digestion with acid and thus to too high values for the fat content, the SBR procedure is not suitable;
- c) the WB procedure, although also applying an acid digestion, is not adversely affected by these ether-extractable compounds, as 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 products.

1 Scope and field of application

This part of ISO 8262 specifies the reference method for the determination of the fat content of infant foods to which the Röse-Gottlieb method is not applicable, viz. those milk-based and other types of infant foods that contain more than 5 % (*m/m*) (in the dry matter) of starch or dextrin, or vegetable, fruit, meat, etc.

NOTE — Other milk-based infant foods should be examined by the method utilizing the RG principle given in ISO 8381¹⁾. (Malto-dextrins without higher molecular dextrans, which are often present in infant foods, do not disturb the RG extraction even when present in high percentages.)

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.

2 Reference

ISO 707, *Milk and milk products — Methods of sampling*.

3 Definition

fat content: All the substances determined by the method specified in this part of ISO 8262.

It is expressed as a percentage by mass.

4 Principle

Digestion of a test portion by boiling with dilute hydrochloric acid, filtration of the hot digest through a wetted filter paper to retain fatty substances, extraction of the fat from the dried filter paper using *n*-hexane or light petroleum, removal of the solvent by distillation or evaporation and weighing of the substances extracted. (This is usually known as the Weibull-Berntrop principle.)

1) ISO 8381, *Milk-based infant foods — Determination of fat content — Röse-Gottlieb gravimetric method (Reference method)*.