INTERNATIONAL STANDARD

ISO 19662

IDF 238

First edition
2018-02

Milk — Determination of fat content — Acido-butyrometric (Gerber method)

Lait — Détermination de la teneur en matière grasse — Méthode acido-butyrométrique (méthode de Gerber)

Reference numbers
ISO 19662:2018(E)
IDF 238:2018(E)

© ISO and IDF 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO and IDF 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

International Dairy Federation
Silver Building • Bd Auguste Reyers 70/B • B-1030 Brussels
Tel. + 32 2 325 67 40
Fax + 32 2 325 67 41
info@fil-idf.org
www.fil-idf.org

Published in Switzerland

Contents

Page

Foreword ... **iv**

1 Scope ... **1**

2 Normative references ... **1**

3 Terms and definitions ... **1**

4 Principle ... **1**

5 Reagents ... **1**

6 Apparatus ... **2**

7 Sampling ... **3**

8 Procedure ... **4**
8.1 Preparation of the test sample ... 4
8.2 Preparation of the butyrometer and test portion ... 4
8.3 Dissolution of the proteins ... 4
8.4 Centrifuging ... 4
8.5 Reading ... 4

9 Expression of results ... **5**
9.1 Method of calculation ... 5
9.2 Precision ... 5
9.2.1 General ... 5
9.2.2 Repeatability ... 5
9.2.3 Reproducibility ... 5

10 Milks having a fat content between 1,5 and 3,0 g/100 ml or g/100 g and 5,0 to 6,0 g/100 ml or g/100 g ... **5**

11 Test report ... **5**

Annex A (normative) **Characteristics of butyrometers** ... **7**

Annex B (normative) **Characteristics of the stoppers** ... **12**

Annex C (informative) **Collaborative trial** ... **14**

Bibliography ... **15**

© ISO and IDF 2018 – All rights reserved

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 documents 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).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on 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 the following URL: 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.

© ISO and IDF 2018 – All rights reserved

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.

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

This document was prepared by the IDF Standing Committee on Analytical Methods for Composition 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.

All work was carried out by the ISO/IDF Project Group C21 of the Standing Committee on Analytical Methods for Composition under the aegis of its project leader, Mr Philippe Trossat (FR).

© ISO and IDF 2018 – All rights reserved

Milk — Determination of fat content — Acido-butyrometric (Gerber method)

1 Scope

This document specifies a method, the acido-butyrometric or "Gerber", for determining the fat content of milk. It is applicable to whole milk and partially skimmed milk.

It is also applicable to milk containing authorized preservatives (potassium dichromate, bronopol).

It does not apply to formalin milk, nor to milks that have undergone a homogenisation treatment.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at https://www.iso.org/obp

3.1
acido-butyrometric method
traditional technique which, when applied to a whole milk having a fat content between 3 g and 5 g per 100 ml or 100 g , gives a fat content that is equivalent, after correction by the density at 20 °C, to that obtained by the gravimetric reference method

4 Principle

Dissolution of the proteins by the addition of sulfuric acid, followed by separation of the milk's fat by centrifuging in a butyrometer. The separation is assisted by the addition of amyl alcohol.

Determination of the fat content in grams per 100 ml or 100 g of milk by direct reading on the butyrometer scale.

5 Reagents

All reagents shall be of recognised analytical grade and the water used shall be distilled water or water of at least equivalent purity.

5.1 Concentrated sulfuric acid, density ρ_{20} = 1,820 g/ml ± 0,005 g/ml, colourless or barely amber, free from any impurity that may influence the result.

© ISO and IDF 2018 – All rights reserved