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**Butter — Determination of moisture,  
non-fat solids and fat contents —**

**Part 3:  
Calculation of fat content**

*Beurre — Détermination des teneurs en eau, en matière sèche non  
grasse et en matière grasse —*

*Partie 3: Calcul de la teneur en matière grasse*



Reference numbers  
ISO 3727-3:2003(E)  
IDF 80-3:2003(E)

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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 3727-3|IDF 80-3 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF), in collaboration with AOAC International. It is being published jointly by ISO and IDF and separately by AOAC International.

This first edition of ISO 3727-3|IDF 80-3, together with ISO 3727-1|IDF 80-1 and ISO 3727-2|IDF 80-2, cancels and replaces ISO 3727:1977, which has been technically revised.

ISO 3727|IDF 80 consists of the following parts, under the general title *Butter — Determination of moisture, non-fat solids and fat contents*:

- *Part 1: Determination of moisture content (Reference method)*
- *Part 2: Determination of non-fat solids content (Reference method)*
- *Part 3: Calculation of fat content*

## 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 and AOAC International 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 National Committees casting a vote.

ISO 3727-3|IDF 80-3 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 5, *Milk and milk products*, and the International Dairy Federation (IDF), in collaboration with AOAC International. It is being published jointly by ISO and IDF and separately by AOAC International.

All work was carried out by the Joint ISO/IDF/AOAC Action Team, *Water*, and that on *Fat*, of the Standing Committee on *Main components of milk*, under the aegis of its project leaders, Mr G.J. Beutick (NL) and Mrs N. Nicolas (FR).

This first edition of ISO 3727-3|IDF 80-3, together with ISO 3727-1|IDF 80-1 and ISO 3727-2|IDF 80-2, cancels and replaces IDF 80:1977, which has been technically revised.

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- *Part 2: Determination of non-fat solids content (Reference method)*
- *Part 3: Calculation of fat content*

# Butter — Determination of moisture, non-fat solids and fat contents —

## Part 3: Calculation of fat content

### 1 Scope

This part of ISO 3727|IDF 80 specifies a method for the calculation of the fat content of butter.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 3727-1|IDF 80-1, *Butter — Determination of moisture, non-fat solids and fat contents — Part 1: Determination of moisture content (Reference method)*

ISO 3727-2|IDF 80-2, *Butter — Determination of moisture, non-fat solids and fat contents — Part 2: Determination of non-fat solids content (Reference method)*

### 3 Terms and definitions

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

#### 3.1

##### **fat content**

mass fraction of substances determined by the procedure specified in this part of ISO 3727|IDF 80

NOTE The fat content is expressed as a mass fraction in percent.

### 4 Principle

The fat content is calculated by subtracting the mass fraction of substances determined by the procedures described in both ISO 3727-1|IDF 80-1 and ISO 3727-2|IDF 80-2 from the total mass fraction of substances (equal to 100 %).

## 5 Calculation and expression of results

### 5.1 Calculation

Calculate the fat content,  $w_f$ , using the following equation:

$$w_f = 100 \% - (w_m + w_{nf})$$

where

- $w_f$  is the fat content of the test sample, expressed as a mass fraction in percent;
- $w_m$  is the moisture content of the test sample obtained by the procedure described in ISO 3727-1|IDF 80-1, expressed as a mass fraction in percent;
- $w_{nf}$  is the non-fat solids content of the same test sample used for the determination of the moisture content, obtained by the procedure described in ISO 3727-2|IDF 80-2, expressed as a mass fraction in percent.

### 5.2 Expression of results

Express the test results to two decimal places.

## 6 Precision

### 6.1 Interlaboratory tests

The individual values obtained in the interlaboratory tests on the precision of the method described in ISO 3727-1|IDF 80-1 and ISO 3727-2|IDF 80-2 are used to calculate mathematically the reproducibility for this method.

### 6.2 Repeatability

If the moisture content and the non-fat solids content were determined in duplicate, the test results shall meet the requirements for repeatability of both ISO 3727-1|IDF 80-1 and ISO 3727-2|IDF 80-2.

As a consequence, a demand for the repeatability of this part of ISO 3727|IDF 80 is redundant.

### 6.3 Reproducibility

The absolute difference between two single test results, obtained using the same method on identical test material in different laboratories with different operators using different equipment, will in not more than 5 % of cases be greater than a mass fraction of 0,25 %.

## 7 Test report

The test report shall specify:

- a) all information necessary for the complete identification of the sample;
- b) the test methods used, with reference to this part of ISO 3727|IDF 80;
- c) all operating details not specified in this part of ISO 3727|IDF 80, or regarded as optional, together with details of any incidents which may have influenced the result(s);
- d) the test result(s) obtained and, if the repeatability has been checked, the final quoted results obtained.

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