

INTERNATIONAL  
STANDARD

ISO  
1738

IDF  
12

Third edition  
2004-10-15

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## Butter — Determination of salt content

*Beurre — Détermination de la teneur en sel*

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Reference numbers  
ISO 1738:2004(E)  
IDF 12:2004(E)

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Published in Switzerland

## 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 1738|IDF 12 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 edition of ISO 1738|IDF 12 cancels and replaces ISO 1738:1997, of which it constitutes a minor revision.

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## 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 1738|IDF 12 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 Group of Experts on *Minerals and minor compounds* (E602), under the aegis of its chairman, Mr G. Bråthen (NO).

This edition of ISO 1738|IDF 12 cancels and replaces IDF 12C:2000, of which it constitutes a minor revision.

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# Butter — Determination of salt content

## 1 Scope

This International Standard specifies a method for the determination of the salt content of butter. The method is applicable to all types of butter containing more than 0,1 % (mass fraction) of salt.

## 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 385-1:1984, *Laboratory glassware — Burettes — Part 1: General requirements*

ISO 648, *Laboratory glassware — One-mark pipettes*

ISO 4788, *Laboratory glassware — Graduated measuring cylinders*

## 3 Terms and definitions

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

### 3.1

#### **salt content**

mass fraction of substances determined by the method specified in this International Standard

NOTE It is expressed as the equivalent content of sodium chloride as a mass fraction in percent.

## 4 Principle

A test portion of butter is melted by adding boiling water. The dissolved chlorides in the mixture are titrated with a solution of silver nitrate, using potassium chromate as indicator (the Mohr procedure).

## 5 Reagents

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

**5.1 Silver nitrate standard volumetric solution** ( $\text{AgNO}_3$ ), of known concentration in the range 0,08 mol/l to 0,10 mol/l.

Dissolve an amount of between 13,6 g to 20,4 g of silver nitrate in water which is practically free from carbon dioxide in a 1 000 ml volumetric flask. Dilute to the mark with water. Calibrate the silver nitrate solution against 100 ml of a solution containing 0,400 g/l of sodium chloride ( $\text{NaCl}$ ), which has previously been dried at 300 °C,

following the procedure specified in 9.3.2 and 9.4. Express the concentration of the silver nitrate solution in moles per litre to four decimals. Store the solution away from direct sunlight.

NOTE If a solution containing 14,53 g/l (0,085 5 mol/l) of silver nitrate is used, 1 ml of this solution is equivalent to 5 mg of sodium chloride, thus making the calculation of the salt content of the butter easier.

## 5.2 Potassium chromate indicator solution

Dissolve 50 g of potassium chromate ( $K_2CrO_4$ ) in 1 000 ml of water.

**WARNING — Hexavalent chromium is a carcinogenic agent.**

## 6 Apparatus

Usual laboratory apparatus and, in particular, the following.

- 6.1 **Analytical balance**, capable of being read to the nearest 0,001 g.
- 6.2 **Titration vessel**, made of glass, for example, a conical flask or beaker of capacity 250 ml.
- 6.3 **Graduated measuring cylinder**, of capacity 100 ml, complying with ISO 4788.
- 6.4 **Pipette**, capable of delivering 2,0 ml, complying with ISO 648.
- 6.5 **Burette**, of capacity 50 ml, complying with ISO 385:1984, Class B.
- 6.6 **Greaseproof paper or plastic film**, chloride free or of sufficiently low chloride content as to not affect the results. The use of filter paper is not recommended.

## 7 Sampling

A representative sample should have been sent to the laboratory. It should not have been damaged or changed during transport or storage.

Sampling is not part of the method specified in this International Standard. A recommended sampling method is given in ISO 707.

Store the sample in such a way that deterioration and change in composition are prevented.

## 8 Preparation of test sample

Take a representative sample of butter to be tested.

If the test sample is visibly not homogeneous, or if the history of the test sample (age, storage conditions) is such that inhomogeneity is to be expected, mix the test sample as follows. Warm the test sample in the original unopened container, which should be from one-half to two-thirds full, to a temperature that preferably should not exceed 30 °C. At this temperature the sample will be soft enough to facilitate thorough mixing to a homogeneous state (either by a mechanical shaker or by hand).

Cool the sample to ambient temperature, continuing to mix until cooling is complete. Immediately after cooling, open the sample container and stir briefly with a suitable device, for example a spoon or spatula, for no longer than 10 s before weighing.