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Whey cheese — Determination of dry matter (Reference method)

Fromage de sérum — Détermination de la matière sèche (Méthode de référence)

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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

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Foreword

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ISO 2920|IDF 58 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 2920|IDF 58 cancels and replaces ISO 2920:1974, of which it constitutes a minor revision.

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.

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Whey cheese — Determination of dry matter (Reference method)

1 Scope

This International Standard specifies a reference method for the determination of the dry matter of whey cheese.

2 Terms and definitions

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

2.1
dry matter of whey cheese
residue obtained by application of the procedure specified in this International Standard and including the water of crystallization of lactose

NOTE It is expressed as a mass fraction in percent.

3 Principle

A sample of whey cheese is desiccated in a ventilated oven set at a temperature of 88 °C.

4 Apparatus and materials

4.1 Grinding mill or other appropriate device.

4.2 Analytical balance, capable of weighing to the nearest 0,000 5 g.

4.3 Desiccator, provided with an efficient drying agent (e.g. silica gel with hygrometric indicator).

4.4 Drying oven, well ventilated and thermostatically controlled, capable of being maintained at 88 °C ± 2 °C.

4.5 Dishes, of stainless steel, nickel or aluminium, with height about 20 mm and diameter 60 mm to 80 mm.

4.6 Quartz sand or **sea sand**, which passes through a sieve with 10 openings per centimetre but not through a sieve with 40 openings per centimetre.

For example, use woven wire cloth test sieves with nominal size of aperture of 500 µm and 180 µm respectively (for details, see ISO 565).

If necessary, the sand shall be washed with hot concentrated hydrochloric acid and water, then dried and ignited.

4.7 Glass stirrers, flat ended.

5 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.

6 Preparation of test sample

Grind the representative sample of the cheese by means of the grinding mill (4.1). If the soft consistency of the cheese makes the use of a grinding mill impossible, mix the sample thoroughly by means of another appropriate device (e.g. a glass stirrer or spatula). Avoid losses by evaporation.

Keep the prepared sample in a suitable airtight container until analysis. Start the analysis within 1 h.

7 Procedure

7.1 Number of determinations

Carry out two determinations of the same test sample.

7.2 Determination

7.2.1 Weigh about 20 g of sand (4.6) in a dish (4.5) together with a glass stirrer (4.7). With hard and semi-hard whey cheeses, which can be adequately ground by means of the grinding mill, the use of sand may be omitted.

7.2.2 Moisten the sand with water and dry the dish to constant mass in the oven (4.4) set at 88 °C.

7.2.3 Allow the dish to cool in the desiccator (4.3) and weigh to the nearest 0,000 5 g.

7.2.4 Quickly weigh, to the nearest 0,000 5 g, about 3 g of the test sample in the dish.

7.2.5 Thoroughly mix the test portion with the sand by means of the stirrer.

7.2.6 Dry the dish and contents in the oven (4.4) set at 88 °C for 4 h.

7.2.7 Allow to cool in the desiccator (4.3) and weigh to the nearest 0,000 5 g.

7.2.8 Dry in the oven (4.4) again for 1 h. Cool in the desiccator and weigh to the nearest 0,000 5 g.

7.2.9 Repeat the operations of drying and cooling until the difference in mass between two successive weighings is not more than 0,001 g

8 Calculation and expression of results

8.1 Calculation

The mass fraction of dry matter, w, expressed in percent, is given by the formula:

$$w = \frac{m_2 - m_0}{m_1 - m_0} \times 100\ \%$$

where

m_0 is the mass, in grams, of the dish containing the sand and stirrer (7.2.3);

m_1 is the mass, in grams, of the dish and contents before drying (7.2.4);

m_2 is the mass, in grams, of the dish and contents after drying (7.2.9).

8.2 Expression of results

Take as the result the arithmetic mean of the two determinations, if the requirement of repeatability (see Clause 9) is satisfied.

9 Repeatability

The absolute difference between two independent single test results, obtained using the same method on identical test material in the same laboratory by the same operator using the same equipment within a short interval of time, will in not more than 5 % of cases be greater 0,2 % of dry matter per 100 g of the product.

10 Test report

The test report shall specify:

a) all information necessary for the complete identification of the sample;

b) the sampling method used, if known;

c) the test method used, with reference to this International Standard;

d) all operating details not specified in this International Standard, or regarded as optional, together with details of any incidents which may have influenced the test results;

e) the test results obtained, clearly mentioning the method of expression used.

Bibliography

[1] ISO 565, *Test sieves — Metal wire cloth, perforated metal plate and electroformed sheet — Nominal sizes of openings*

[2] ISO 707, *Milk and milk products — Guidance on sampling*[1)]

1) Equivalent to IDF 50.