SLOVENSKI STANDARD
oSIST prEN ISO 5537:2023

01-januar-2023

Mleko v prahu in suhi mlečni proizvodi - Določevanje vlage (referenčna metoda) (ISO/DIS 5537:2022)

Dried milk and dried milk products - Determination of moisture content (Reference method) (ISO/DIS 5537:2022)

Milchpulver - Bestimmung des Wassergehaltes (Referenzverfahren) (ISO/DIS 5537:2022)

Lait sec et produits à base de lait sec - Détermination du taux d'humidité (méthode de référence) (ISO/DIS 5537:2022)

Ta slovenski standard je istoveten z: **prEN ISO 5537**

ICS:

67.100.10	Mleko in predelani mlečni proizvodi	Milk and processed milk products

oSIST prEN ISO 5537:2023 **en,fr,de**

DRAFT INTERNATIONAL STANDARD

ISO/DIS 5537

IDF 26

ISO/TC **34**/SC **5** Secretariat: **NEN**

Voting begins on: **2022-11-14**

Voting terminates on: **2023-02-06**

Dried milk and dried milk products — Determination of moisture content (Reference method)

ICS: 67.100.10

This document is circulated as received from the committee secretariat.

ISO/CEN PARALLEL PROCESSING

Reference numbers
ISO/DIS 5537:2022(E)
IDF 26:2022(E)

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Published in Switzerland

Contents

Page

Forewords

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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).

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For an explanation of 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 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.

This second edition of ISO 5537|IDF 26 cancels and replaces the first edition of ISO 5537|IDF 26:2004, to which precision data for additional matrices were added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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.

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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.

The work was carried out by the IDF/ISO Action Team C54 of the *Standing Committee on Analytical Methods for Composition* under the aegis of its project leader Dr H. van den Bijgaart (NL).

Dried milk and dried milk products — Determination of moisture content (Reference method)

WARNING — The use of this document may involve the use of hazardous materials, operations, and equipment. This standard does not purport to address all the safety risks associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of local regulatory limitations prior to use.

1 Scope

This document specifies a method for the determination of the moisture content of all types of dried milk and dried milk products.

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 terminology databases for use in standardization at the following addresses:

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

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

3.1
moisture content
mass fraction of substances determined by the procedure specified in this document

Note 1 to entry: The moisture content is expressed as a percentage by mass.

4 Principle

A test portion is dried in a drying oven set at 87 °C for 5 h while dry air is passed through the test portion. The loss of mass of the test portion (which is related to the content of "non-chemically bound" water) is determined.

5 Apparatus

Usual laboratory apparatus and, in particular, the following.

5.1 Analytical balance, capable of weighing to the nearest 1 mg, with a readability of 0,1 mg.

5.2 Drying oven, capable of being maintained at 87 °C ± 1 °C throughout the working space, with forced ventilation, thermostatically controlled, with the following equipment (see also Figure A.1).

5.2.1 Metal block, provided with channels of diameter 4,3 mm for holding the columns (5.4) in the drying oven.

5.2.2 Copper tubes, of length 1 500 mm, of internal diameter 2 mm, connected to the metal block in the drying oven.

5.2.3 Constant pressure regulator, provided with restrictors, capable of delivering 33 ml/min ± 2 ml/min of dry air to each column in the drying oven.

5.2.4 Tube, made of polycarbonate, of length 350 mm, of diameter 40 mm, filled with silica gel with hygrometric indicator.

The silica gel should have been dried at 150 °C for more than 12 h before use. Using the dry compressed air (5.11), no colour change of the hygrometric indicator should be noticed.

5.3 Desiccator, containing freshly dried silica gel with hygrometric indicator.

5.4 Columns, made of hard polypropylene (Phenomenex 1213–10211)[1)], of length 90 mm, of internal diameter 20 mm, provided with two polyethene filters (Phenomenex 1212–1023)[1)], narrowed towards one end to fit onto the block (5.2.1).

5.5 Synthetic stoppers, made of soft polyethylene (Emergo 20273 B198 and 20371 U1)[1)].

5.6 Container, suitable for holding the columns (5.4).

5.7 Container, suitable for holding the synthetic stoppers (5.5).

5.8 Rod, made of polyvinyl chloride (PVC), of length 120 mm, of diameter 18 mm, suitable for placing the polyethylene filters in the column (5.4).

5.9 Tweezers, suitable for removing the polyethylene filters from the column (5.4).

5.10 Calibrated airflow meter, suitable for measuring a flow rate of 33 ml/min ± 2 ml/min.

Electronic airflow meters, as for instance used with gas chromatography, have been found suitable. For use, the inlet of the airflow meter is to be connected to a copper tube, with an internal diameter of 2 mm, that is punctured through the center of a synthetic stopper (5.5).

5.11 Dry compressed air, minimum pressure of 200 kPa, moisture content of ≤ 0,01 mg H_2O per litre at atmospheric pressure, free of any organic material. Use metal tubes only to connect the source of compressed air to the equipment in the drying oven (5.2).

5.12 Container, made of glass, provided with an airtight lid.

NOTE The apparatus mentioned in 5.2 and those in 5.4 to 5.8 and 5.10 are available commercially (e.g. Funke-Dr.N.Gerber Labortechnik GmbH, Berlin, Germany)[2)].

6 Sampling

It is important that the laboratory receives a sample which is truly representative and has not been damaged or changed during transport or storage.

1) Phenomenex and Emergo are examples of suitable products available commercially.

2) Funke Gerber is the trade name of products supplied by Funke-Dr.N.Gerber Labortechnik GmbH, Ringstrasse 42, 12105, Berlin, Germany.

This information is given for the convenience of users of this document and does not constitute an endorsement by ISO or IDF of the product named. Equivalent products may be used if they can be shown to lead to the same results.