

INTERNATIONAL STANDARD

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Milk, cream and evaporated milk — Determination of total solids content (Reference method)

*Lait, crème et lait concentré non sucré — Détermination de la matière sèche
(Méthode de référence)*



Reference number
ISO 6731 : 1989 (E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 6731 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, in collaboration with the International Dairy Federation (IDF) and the Association of Official Analytical Chemists (AOAC) and will also be published by these organizations.

Milk, cream and evaporated milk — Determination of total solids content (Reference method)

1 Scope

This International Standard specifies the reference method for the determination of the total solids content of milk, cream and evaporated milk.

2 Normative reference

The following standard contains provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 707 : 1985, *Milk and milk products — Methods of sampling*.

3 Definition

For the purposes of this International Standard, the following definition applies.

total solids content: The mass fraction of substances remaining after completion of the heating process specified in this International Standard.

It is expressed as a percentage by mass.

4 Principle

Pre-drying of a test portion on a boiling water-bath and subsequent evaporation of the remaining water in a drying oven at a temperature of $102\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$.

5 Apparatus

Usual laboratory apparatus and, in particular, the following.

5.1 Analytical balance.

5.2 Desiccator, provided with an efficient desiccant (for example freshly dried silica gel with a hygrometric indicator).

5.3 Boiling water-bath, provided with openings of adjustable size.

5.4 Drying oven, ventilated, capable of being maintained thermostatically at $102\text{ }^{\circ}\text{C} \pm 2\text{ }^{\circ}\text{C}$ throughout the total working space.

5.5 Flat-bottom dishes, of height 20 mm to 25 mm, diameter 50 mm to 75 mm, and made of appropriate material (for example stainless steel, nickel or aluminium), provided with well-fitting, readily removable lids.

5.6 Water-baths.

5.6.1 Water-bath, capable of being maintained at $35\text{ }^{\circ}\text{C}$ to $40\text{ }^{\circ}\text{C}$.

5.6.2 Water-bath, capable of being maintained at $40\text{ }^{\circ}\text{C}$ to $60\text{ }^{\circ}\text{C}$.

5.7 Homogenizer (optional; see 7.1).

6 Sampling

See ISO 707.

7 Preparation of the test sample

7.1 Milk

Bring the sample to a temperature of $20\text{ }^{\circ}\text{C}$ to $25\text{ }^{\circ}\text{C}$. Mix thoroughly to ensure a homogeneous distribution of the fat throughout the sample. Avoid agitating so vigorously as to cause frothing of the milk or churning of the fat. If it is found difficult to disperse the cream layer, warm slowly to $35\text{ }^{\circ}\text{C}$ to $40\text{ }^{\circ}\text{C}$ on a water-bath (5.6.1) with careful mixing and incorporate any cream adhering to the container. Cool the sample quickly to $20\text{ }^{\circ}\text{C}$ to $25\text{ }^{\circ}\text{C}$.

If desired, a homogenizer may be used to assist the dispersion of the fat.

NOTE — Correct results cannot be expected if the sample contains separated liquid fat or separate visible irregularly shaped white particles adhering to the walls of the container.

7.2 Cream

Warm the sample slowly to a temperature of $35\text{ }^{\circ}\text{C}$ to $40\text{ }^{\circ}\text{C}$ on a water-bath (5.6.1). Mix or stir the cream thoroughly but not so vigorously as to cause frothing or churning. Cool the sample