International Standard 7238

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Butter — Determination of pH of the serum — Potentiometric method

Beurre — Détermination du pH de la phase aqueuse — Méthode potentiométrique

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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 developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

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.

International Standard ISO 7238 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in July 1982.

It has been approved by the member bodies of the following countries :

Australia	India	Portugal
Austria	Iran	Romania
Belgium	Iraq	South Africa, Rep. of
Czechoslovakia	Israel	Spain
Egypt, Arab Rep. of	Korea, Rep. of	Thailand
Ethiopia	Mexico	Turkey
France	Netherlands	United Kingdom
Germany, F. R.	New Zealand	USA
Hungary	Poland	USSR

No member body expressed disapproval of the document.

NOTE — The method specified in this International Standard has been developed jointly with the International Dairy Federation (IDF) and the Association of Official Analytical Chemists (AOAC) and will also be published by these organizations.

Printed in Switzerland

Butter — Determination of pH of the serum — Potentiometric method

1 Scope and field of application

This International Standard specifies a potentiometric method for the determination of the pH of the serum from all types of butter.

2 References

ISO 707, *Milk and milk products — Methods of sampling.*[1]

ISO 3696, *Water for laboratory use — Specifications.*[2]

3 Definition

pH of butter serum: The potential difference at the measuring temperature between two electrodes immersed in butter serum, determined by the procedure specified in this International Standard, and expressed in pH unit.

4 Principle

Measurement of the potential difference between a glass electrode and a reference electrode in the serum separated from melted butter.

5 Reagents

The reagents shall be of recognized analytical quality and the water used in their preparation shall be recently distilled water that has been protected from absorption of carbon dioxide and that complies with the requirements for grade 1 water specified in ISO 3696.

5.1 Buffer solutions, for calibration of the pH meter.

Two standard buffer solutions, having pH values known to the second decimal place at the measuring temperature, and which will bracket the pH value of the serum obtained from the test portion, shall be used, for example a buffer solution of pH approximately 4 and another of pH approximately 7.

NOTE — The following buffer solutions may be used:

a) **Buffer solution of pH 4,00 at 20 °C and 4,01 at 25 °C:**

Dissolve, in water, 10,12 g of potassium hydrogen phthalate ($KHC_8H_4O_4$), which has been previously dried to constant mass at 120 °C. Make up to 1 000 ml with water at the measuring temperature and mix well.

Preserve the solution by adding approximately 2 ml of chloroform or carbon tetrachloride.

b) **Buffer solution of pH 6,88 at 20 °C and 6,86 at 25 °C:**

Dissolve, in water, 3,388 g of potassium dihydrogenorthophosphate (KH_2PO_4) and 3,533 g of disodium hydrogenorthophosphate (Na_2HPO_4), both compounds having been previously dried to constant mass at 120 °C. Make up to 1 000 ml with water at the measuring temperature and mix well.

Preserve the solution by adding approximately 2 ml of chloroform or carbon tetrachloride.

6 Apparatus

Usual laboratory apparatus, and in particular:

6.1 pH meter, minimum sensitivity 0,01 pH unit, with a glass electrode and a suitable reference electrode, and with temperature compensation.

NOTE — The glass and reference electrodes may be assembled into a system of combined electrodes.

6.2 Centrifuge (if required), of the vertical-loading type[3], capable of attaining a relative radial acceleration of approximately 375 *g*.

6.3 Centrifuge tubes (if required), of capacity approximately 50 ml with suitable stoppers.

6.4 Test tubes, of capacity approximately 12 ml, internal diameter 16 to 20 mm.

6.5 Water bath (if required), capable of being controlled at 65 °C.

1) At present at the stage of draft. (Revision of ISO/R 707-1968.)

2) At present at the stage of draft.

3) For details of a suitable centrifuge, reference should be made to clause 6.6 of ISO 2446, *Milk — Determination of fat content (Routine method).*