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International Standard



1026

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Fruit and vegetable products — Determination of dry matter content by drying under reduced pressure and of water content by azeotropic distillation

Produits dérivés des fruits et légumes — Détermination de la teneur en matière sèche par dessiccation sous pression réduite et détermination de la teneur en eau par distillation azéotrope

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (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 set up 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 1026 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in December 1980.

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

Australia	Iran	Philippines
Bulgaria	Iraq	Poland
Canada	Ireland	Portugal
Czechoslovakia	Israel	Romania
Egypt, Arab Rep. of	Kenya	South Africa, Rep. of
Ethiopia	Korea, Dem. P. Rep. of	Spain
France	Korea, Rep. of	Sri Lanka
Germany, F. R.	Malaysia	Thailand
Hungary	Netherlands	USSR
India	Pakistan	Yugoslavia

No member body expressed disapproval of the document.

This International Standard cancels and replaces ISO Recommendation R 1026-1969, of which it constitutes a technical revision.

Fruit and vegetable products – Determination of dry matter content by drying under reduced pressure and of water content by azeotropic distillation

1 Scope and field of application

This International Standard specifies a method for the determination of the dry matter content of fruit and vegetable products by drying under reduced pressure, and a method for the determination of water content by azeotropic distillation.

The method by drying under reduced pressure is applicable to all fruit and vegetable products, with the exception, however, of products for which drying would modify the state of the components, and of certain products having a water content below 10 %.

In these latter cases, the dry matter content may be obtained by difference after determination of the water content by azeotropic distillation. This latter method, however, is subject to certain restrictions, for example products soluble in water or benzene, or products rich in certain volatile substances or fermentation products.

2 Determination of dry matter content

2.1 Definition

dry matter : The whole of the substances which do not volatilize under the conditions of drying specified in this International Standard.

2.2 Principle

After mixing, heating to constant mass of liquid or semi-liquid products spread over an absorbent surface, or of pasty products mixed with an inert powder, at 70 °C under reduced pressure.

2.3 Apparatus

Usual laboratory equipment, and in particular

2.3.1 Oven, allowing drying to be carried out at 70 °C under a pressure of about 3 kPa¹⁾, while allowing a slow current of dry air (see 2.7.3) to enter at a rate of 10 or 40 l/h, as appropriate, measured at atmospheric pressure before entry into the oven; air introduced by means of a tap shall be dried, for example by passing it, one bubble at a time, into a wash bottle

containing sulphuric acid, placed in front of the tap ensuring expansion of the air. The temperature shall be uniform at all points in the oven.

2.3.2 Desiccator, provided with an efficient desiccant.

2.3.3 Dishes, of corrosion-resistant metal (aluminium, nickel, or, preferably, thin stainless steel), cylindrical with a flat bottom (for example, of diameter about 60 mm and height 25 mm), provided with well-fitting lids (see 2.7.1).

2.3.4 Glass rods, of length appropriate to the size of the dishes (2.3.3).

2.3.5 Analytical balance.

2.4 Materials

2.4.1 Paper strips, for liquid products.

Use ashless filter paper. Alternatively, filter paper previously washed for 8 h in 2 g/l hydrochloric acid solution, rinsed five times with distilled water and dried in air may also be used. Cut the paper into strips 20 mm wide. Crimp or fold in accordion fashion with close pleats, or more simply wind round a triangular mandrel of 1 cm sides. The strip partially uncoils itself, giving a polygonal spiral. Place 4 to 4,5 g of paper in each dish, i.e. either 3 m of paper strip if the grammage of the paper is between 60 and 70 g/m², or 1 m if a thick paper, of grammage 180 to 200 g/m², is used.

2.4.2 Paper discs, for semi-liquid products.

Use discs of strong ashless filter paper, crimped, cut to a diameter slightly less than that of the dishes. If ashless filter paper is not available, treat a filter paper as described in 2.4.1.

2.4.3 Pure sand, for thick or solid products.

Use pure sand which has been washed with 5 % (m/m) hydrochloric acid solution, rinsed until free from hydrochloric acid (verifying the absence of chloride ions in the washings by means of silver nitrate solution), sieved so that the grains are of sizes within the range 100 to 400 µm, and calcined.

1) 3 kPa = 30 mbar