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Starches, native or modified — Determination of total fat content

Amidons et fécules, natifs ou transformés — Détermination de la teneur en matières grasses totales

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FOREWORD

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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 3947 was developed by Technical Committee ISO/TC 93, *Starch (including derivatives and by-products)*, and was circulated to the member bodies in September 1975.

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

Czechoslovakia	Netherlands	Turkey
France	Poland	United Kingdom
Germany	Portugal	Yugoslavia
Iran	Romania	
Mexico	Spain	

No member body expressed disapproval of the document.

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Starches, native or modified — Determination of total fat content

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of the total fat content of starches, native or modified, of which the expected total fat content is less than 1,5 % (*m/m*).

2 REFERENCE

ISO 5808, *Starch derivatives and by-products — Determination of "extractable" fat content.*[1)]

3 DEFINITION

total fat content : The residue obtained under the conditions described in the procedure and expressed as a percentage by mass of the product as received.

4 PRINCIPLE

Hydrolysis of the product by boiling hydrochloric acid, and coagulation of the insoluble products, including the total fat, by cooling. Separation by filtration, drying and isolation of the total fat by solvent extraction.

5 REAGENTS

Use distilled water or water of at least equivalent purity.

5.1 Solvent : *n*-hexane or light petroleum (boiling range 40 to 60 °C) or carbon tetrachloride. (These solvents, especially the carbon tetrachloride, must be handled with care owing to their toxicity.)

The residue on complete evaporation shall not exceed 0,001 g/100 ml.

5.2 Hydrochloric acid, ρ_{20} 1,18 g/ml.

5.3 Iodine, 0,001 N solution.

5.4 Methyl orange, 2 g/l aqueous solution.

6 APPARATUS

Glass apparatus should preferably be fitted with ground glass joints.

Ordinary laboratory apparatus and in particular

6.1 Efficient extractor, for example Soxhlet or Twisselmann or other suitable type.

6.2 Extraction flask, suitable for attaching to the lower end of the extractor (6.1).

6.3 Filter paper discs, pore diameter 10 µm, free from matter soluble in the solvent used (5.1).

6.4 Paper extraction thimble, suitable for use in the extractor (6.1), and free from matter soluble in the solvent used (5.1).

6.5 Cotton wool, free from matter soluble in the solvent used (5.1).

6.6 Efficient water-cooled reflux condenser, suitable for attaching to the upper end of the extractor (6.1).

6.7 Electrical heating device, fitted with a variable temperature control.

NOTE — An assembly of multiple extraction units with individual electrical regulation may be used.

6.8 Water bath, at a temperature of 15 to 25 °C.

6.9 Boiling water bath.

6.10 Oven, capable of being controlled at 50 ± 1 °C.

6.11 Vacuum oven, capable of being controlled at 100 ± 1 °C.

6.12 Beaker, of capacity 600 ml.

6.13 Desiccator, containing an efficient desiccant.

6.14 Analytical balance.

1) In preparation.