International Standard 3593

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

Starch — Determination of ash

Amidons et fécules — Détermination des cendres

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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 3593 was developed by Technical Committee ISO/TC 93, *Starch (including derivatives and by-products)*.

This second edition was submitted directly to the ISO Council, in accordance with clause 5.10.1 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 3593-1976), which had been approved by the member bodies of the following countries :

Chile	Netherlands	United Kingdom
Czechoslovakia	Poland	USSR
France	Romania	Yugoslavia
Germany, F. R.	Spain	
Iran	Turkey	

The member bodies of the following countries had expressed disapproval of the document on technical grounds :

Australia
USA

Printed in Switzerland

Starch — Determination of ash

0 Introduction

Native starches contain naturally small amounts of mineral substances. Converted starches may additionally contain variable amounts of added mineral substances.

This International Standard specifies a procedure for the conventional evaluation of both of these amounts together.

1 Scope and field of application

This International Standard specifies a method for the determination of the ash yielded by starches.

The method is applicable to native starches and to modified starches yielding not more than 2 % of ash. It does not apply to hydrolysis products nor to oxidized starches, nor to other products containing more than 0,2 % of chloride expressed as sodium chloride. In the other cases, use the method specified in ISO 5809.[1)]

2 Reference

ISO 1666, *Starch — Determination of moisture content — Oven-drying methods.*

3 Definition

For the purpose of this International Standard, the following definition applies :

ash : The residue obtained after incineration of the product under the conditions specified in this International Standard.

The ash is expressed as a percentage by mass either of the product as received or on the dry basis.

4 Principle

Incineration of a test portion, at a temperature of 900 °C, until complete disappearance of the carbon in the residue.

5 Apparatus

Ordinary laboratory apparatus, and in particular :

5.1 Ashing dishes, of platinum or of any other material unaffected under the test conditions, with a flat base, a capacity of about 40 ml and a minimum usable surface area of 15 cm^2.

5.2 Desiccator, provided with a thick perforated metal plate, and containing an efficient desiccant such as phosphorus(V) oxide, silica gel impregnated with cobalt chloride indicator, or granular anhydrous calcium sulphate similarly treated.

5.3 Electric furnace with ventilation, including a device for control and adjustment of temperature to provide for incineration at a temperature of 900 ± 25 °C.

5.4 Analytical balance.

5.5 Electric hot-plate or **bunsen burner.**

6 Procedure

6.1 Preparation of the dish

Clean the ashing dish (5.1), whether new or used, for example with boiling dilute hydrochloric acid, and rinse copiously with tap water and then with distilled water.

Place the dish in the furnace (5.3) and heat for 30 min at 900 ± 25 °C. Allow to cool to room temperature in the desiccator (5.2) and then weigh to the nearest 0,000 1 g.

6.2 Test portion

Weigh rapidly, to the nearest 0,001 g, 2 to 10 g of the product[2)] according to the expected yield of ash. Distribute the material without compression in the dish.

1) ISO 5809, *Starch, including derivatives and by-products — Determination of sulphated ash* (at present at the stage of draft).

2) It is generally convenient to take at least 5 g for potato, wheat and rice starches and 10 g for maize or manioc starches.