
INTERNATIONAL STANDARD



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Animal feeding stuffs – Determination of crude ash

Aliments des animaux – Détermination des cendres brutes

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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 5984 was developed by Technical Committee ISO/TC 34, *Agricultural food products*, and was circulated to the member bodies in May 1977.

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

Australia	Iran	Romania
Austria	Israel	South Africa, Rep. of
Canada	Kenya	Spain
Chile	Mexico	Thailand
Czechoslovakia	Netherlands	Turkey
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Hungary	Poland	Venezuela
India	Portugal	Yugoslavia

No member body expressed disapproval of the document.

Animal feeding stuffs – Determination of crude ash

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method for the determination of crude ash of animal feeding stuffs.

2 DEFINITION

crude ash: The residue obtained after incineration at 550 °C under the conditions described below, expressed as a percentage by mass.

3 PRINCIPLE

Decomposition of organic matter from a test portion by incineration, and weighing of the ash obtained.

4 APPARATUS

Usual laboratory apparatus and in particular:

4.1 Analytical balance.

4.2 Muffle furnace, electrically heated, thermostatically controlled, and provided with a pyrometer. The furnace, when set at 550 °C, shall be capable of being controlled in such a way that the temperature in the places where the incineration dishes will be placed will not differ by more than 20 °C from this set temperature.

4.3 Drying oven, capable of being controlled at 103 ± 2 °C.

4.4 Hot-plate or gas burner.

4.5 Incineration dish of platinum or platinum-gold alloy (for example 10% Pt, 90% Au) or of other material unaffected by the conditions of the test, preferably rectangular with a surface area of about 20 cm² and a height of about 2,5 cm.

NOTE – For samples which are inclined to swell on carbonizing, use dishes with a surface area of about 30 cm² and a height of about 3 cm.

4.6 Desiccator, provided with an effective desiccant.

5 SAMPLING¹⁾

Store the sample in such a way that deterioration and change in composition are prevented.

6 PROCEDURE

6.1 Test portion

Weigh, to the nearest 0,001 g, about 5 g of the test sample¹⁾ into the incineration dish (4.5), previously heated for at least 30 min in the muffle furnace (4.2) at 550 °C, cooled in the desiccator (4.6) and weighed to the nearest 0,001 g.

6.2 Determination

Place the incineration dish containing the test portion (6.1) on a hot-plate or over a gas burner (4.4) and heat progressively until the test portion has carbonized. Transfer the dish into the muffle furnace (4.2), previously set at 550 °C, and leave it for 3 h. Inspect visually whether the ash is free from carbonaceous particles. If it is not, replace the dish in the furnace and heat another 1 h. If carbonaceous particles are still visible, or if there is doubt as to whether they are present, allow the ash to cool, moisten with distilled water, evaporate carefully to dryness in the oven (4.3), controlled at 103 ± 2 °C, replace the dish in the furnace and heat for another 1 h. Allow the dish to cool in the desiccator (4.6) to room temperature and weigh rapidly to the nearest 0,001 g.

NOTE – The crude ash obtained by the above procedure may be used subsequently for the determination of ash insoluble in hydrochloric acid (ISO 5985 – Procedure A).

6.3 Duplicate determination

Carry out two determinations on test portions from the same test sample.

1) International Standards on sampling and on preparation of the test sample are in preparation.

7 EXPRESSION OF RESULTS

7.1 Method of calculation and formula

The crude ash, expressed as a percentage by mass of the test sample, is equal to

$$(m_2 - m_0) \times \frac{100}{m_1 - m_0}$$

where

m_0 is the mass, in grams, of the empty dish;

m_1 is the mass, in grams, of the dish containing the test portion;

m_2 is the mass, in grams, of the dish and the crude ash.

Take as the result the arithmetic mean of the two determinations, provided that the requirement for repeatability (see 7.2) is satisfied. Report the result to the nearest 0,1 % (m/m).

7.2 Repeatability

The difference between the results of two determinations carried out simultaneously or in rapid succession by the same analyst shall not exceed :

0,3 (absolute value) for crude ash yields lower than 3 % (m/m);

10 % of the mean value for crude ash yields from 3 to 5 % (m/m);

0,5 (absolute value) for crude ash yields from 5 to 20 % (m/m);

2,5 % of the mean value for crude ash yields from 20 to 40 % (m/m);

1 (absolute value) for crude ash yields of 40 % (m/m) or more.

8 TEST REPORT

The test report shall show the method used and the result obtained. It shall also mention any operating conditions not specified in this International Standard, or regarded as optional, as well as any circumstances that may have influenced the result.

The report shall include all details required for complete identification of the sample.

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