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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 6438-2025

**Determination of crude ash in feeds
(English Translation)**

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Foreword

This document was drafted in accordance with the provisions of GB/T 1.1-2020

"Directives for standardization - Part 1.Rules for the structure and drafting of standardizing documents".

This document replaces GB/T 6438-2007, "Determination of crude ash in feeds."

Compared with GB/T 6438-2007, in addition to structural adjustments and editorial changes, the main technical changes are as follows.

a) MODIFY the scope of application (see Clause 1 of this document; Clause 1 of the

2007 edition);

b) MODIFY the principle (see Clause 4 of this document; Clause 4 of the 2007 edition);

c) ADD the "Reagents or materials" (see Clause 5 of this document);

d) DELETE the "Sampling" (see Clause 6 of the 2007 edition);

e) MODIFY the technical requirements for box-type resistance furnace and

incineration dish (see 6.2 and 6.5 of this document; 5.2 and 5.5 of the 2007 edition);

f) MODIFY the "Sample preparation" to "Samples" (see Clause 7 of this document;

7.1 of the 2007 edition);

g) MODIFY the sample mass (see 8.1 of this document; 7.2 of the 2007 edition);

h) MODIFY the "Determination" to "Carbonization and incineration" (see 8.2 of this document; 7.3 of the 2007 edition);

i) MODIFY the requirements for precision (see Clause 10 of this document; 9.2 of the 2007 edition);

j) DELETE the "Interlaboratory test," "Reproducibility," and "Test report" (see 9.1, 9.3, and Clause 10 of the 2007 edition).

This document has modified and adopted ISO 5984.2022, "Animal feeding stuffs - Determination of crude ash."

Compared with ISO 5984.2022, this document has made the following structural adjustments.

- ADD "Reagents or materials" as Clause 5;
- Clause 6 corresponds to Clause 5 of ISO 5984.2022;

Determination of crude ash in feeds

1 Scope

This document describes a method for the determination of crude ash in feeds.

This document applies to the determination of crude ash in compound feeds, concentrate feeds, concentrate supplements, additive premixes, and feed ingredients.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

GB/T 6682 Water for analytical laboratory use - Specification and test methods

(GB/T 6682-2008, ISO 3696.1987, MOD)

GB/T 20195 Animal feed - Preparation of test samples (GB/T 20195-2024, ISO 6498.2012, MOD)

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

crude ash

Residue obtained after incineration at $550\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ under the conditions specified in this document.

NOTE: Crude ash is usually expressed as a percentage by mass.

4 Principle

A test specimen is carbonized and then incinerated at $550\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$; after cooling, weigh the mass of the ash and calculate its percentage of the sample mass.

5 Reagents or materials

Unless otherwise specified, only analytically pure reagents shall be used.

5.2 Hydrochloric acid solution (3 mol/L). Measure 250 mL of hydrochloric acid, dilute

to 1000 mL with water, and mix thoroughly.

6.2 Box-type resistance furnace. electrically heated, with temperature control and

display functions, or capable of programmable temperature control; the temperature at the sample location can be maintained at a stable $550\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$.

6.5 Incineration dish. porcelain crucible, quartz crucible, platinum crucible, or platinum

alloy (e.g., 10 % Pt, 90 % Au) crucible, volume 30 mL ~ 50 mL. For samples with a low specific gravity that are inclined to swell on carbonization (e.g., whey powder), it should use crucibles with a larger bottom area.

NOTE: Before use, new porcelain or quartz crucibles shall be boiled in hydrochloric acid solution

(5.2), cleaned with water (5.1), and then dried.

7 Samples

Prepare according to GB/T 20195. For solid samples, take at least 200 g, crush so that it passes through a 1.0 mm test sieve, mix thoroughly, and store in a sealed container until ready for use. For uniformly distributed liquid and semi-solid samples, take at least

200 g, directly store in a sealed container until ready for use; for non-uniformly

distributed liquid and paste samples, homogenize before testing.

8.1 Sample weighing

Perform two parallel tests. Place the incineration dish (6.5) in a box-type resistance furnace (6.2) at $550\text{ }^{\circ}\text{C} \pm 25\text{ }^{\circ}\text{C}$ for at least 30 min, transfer to a desiccator (6.6) and cool to room temperature, and weigh to the nearest 0.001 g. Weigh 2 g (to the nearest

0.001 g) of specimen (weigh approximately 1 g for samples that are inclined to swell

on carbonization) and place it in the incineration dish (6.5).

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