

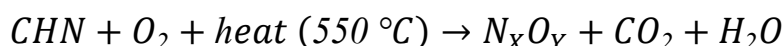
METHOD SPECIFICATION
Faculty of Biosciences, NMBU

Method name: Ash

BIOVIT No. : Msp1038

1. Method of analysis / Principle / Main instrument

The dry matter in a sample consists of two fractions, an organic and an inorganic. When the sample material is burned, water evaporates, and the organic compounds burn up to form CO₂ and oxides such as N_xO_y.



Most metals will be converted to oxides(O²⁻), sulfates(SO₄²⁻), phosphates(PO₄³⁻), chlorides(Cl⁻) and silicates(SiO₄⁴⁻) during combustion, but there are also some metals that will partially evaporate by the high temperatures (550 °C) used in the analysis. If the ash is to be used further for analyzes of iron(Fe), selenium(Se), lead(Pb) or mercury(Hg), decomposition with acid should be used instead.

The amount of ash will therefore not be completely representative of the amount of inorganic material in the feed. Another reason for this is that the ash may also contain material derived from the organic part of the sample, but which has not been completely incinerated or removed. Even with these limitations, it is assumed that the ash content is a representative measure of the total mineral content of the sample.

The method determines the amount of ash content (amount of inorganic material) after incineration at 550 °C for min. 4 hours, maximum 20 hours.

Main instrument: Muffle furnace (Nabertherm, Germany)

2. Reference and any modifications

- ISO 5984, Animal feeding stuffs - Determination of crude ash.

Modification: The charring step is not performed.

- Alternative reference: Commission Regulation (EC) No 152/2009. (see section 5, no. 3)

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3. Requirements for grinding and storage

The method can be used for all types of samples. Sample material with little organic material will contain more ash than sample material that contains a lot of organic material. Recommended degree of grinding for dry material is 1 mm. Smaller particles will give a better combustion and a more correct analytical result.

Sample amount: 0.5 - 1.0 g (standard procedure)

If it is desirable / necessary to weigh in more, it should be ashed for at least 16 hours to make sure the ashing is complete.

4. Contact persons:

Lab manager: Hanne K. Hustoft

Responsible for analysis: Elin Kristoffersen / Heidi Askerud

5. Other literature

1. ISO 6497, Animal feeding stuffs - Sampling
2. ISO 6498, Animal feeding stuffs - Preparation of test samples
3. Commission Regulation (EC) No 152/2009. 27 Jan 2009. Laying down the methods of sampling and analysis for the official control of feed. Annex III, P, Official Journal of the European Union L54 / 1 from 26/02/2009.

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