

**METHOD SPECIFICATION**  
**Faculty of Biosciences, NMBU**

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**Method name: AIA (Acid Insoluble Ash)**

BIOVIT No.: Msp1034

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**1. Method of analysis / Principle / Main instrument**

AIA indicates the proportion of silica and silicates (silica is the main constituent of sand) in a sample and can be used as a marker for the enjoyment of different types of feed. The analysis is based on the combustion of organic material, boiling in HCl and incineration of the sample, before gravimetric measurement (1).

**Main instrument:** muffle furnace Nebertherm, Lilienthal (Germany).

**2. Reference and any modifications**

- ISO 5985: Animal feeding stuff- Determination of ash insoluble in hydrochloric acid

Modifications: Sample volume, volume of HCl and cooking time are scaled down.

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

**3. Requirements for grinding and temperature**

The method can be used for feed, feed ingredients and faeces. For mineral samples/mixtures, an alternative procedure must be used (See procedure B in ISO 5985). Sample material with little organic material will contain more ash than sample material that contains a lot of organic material. Recommended grinding grade for "dry" material is 1 mm. Smaller particles will give a better combustion and a more correct analytical result.

Sample amount: about 2 grams

**4. Contact persons**

**Lab manager:** Hanne Kolsrud Hustoft

**Responsible for the analysis:** Heidi Askerud

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## 5. Additional literature

Sales, J, and G. Janssens. 2003. "Acid-insoluble Ash as a Marker in Digestibility Studies: a Review." *Journal of Animal and Feed Sciences*, 12 (3): 383–401.

Cologne, J.V., 1977. Evaluation of Acid-Insoluble Ash as a Natural Marker in Ruminant Digestibility Studies, *Journal of Animal Science*, 44: 2, 282-287.

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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