

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

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**Method name: aNDF (Neutral Detergent Fiber)**

BIOVIT No: Msp1041

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

The sample is heated in a neutral detergent solution with heat-stable alpha-amylase so that the content of the cells dissolves while the cell wall remains undissolved. This undissolved fraction is called Neutral Detergent Fiber (NDF) and is mainly hemicellulose, cellulose and lignin. The soluble fraction, "neutral detergent solubles" (NDS) consists of lipids, sugars, organic acids, water-soluble compounds, pectin, starch, non-protein nitrogen and water-soluble proteins (1). The amount of NDF is determined gravimetrically and the amount of NDS can be calculated. aNDF means that it is the enzyme alpha-amylase that has been added to break down any starch. (There are alternative enzymes).

*Unfortunately, the soap solution fails to dissolve all of the inorganic material in the sample and will therefore be part of the calculated NDF value. To correct for this inorganic part, the sample can be incinerated at 550 ° C. See MSP 1042 NDFom (ash corrected).*

**Main Instrument:** Ankom<sup>200</sup> Fiber Analyzer (Ankom Technology)

**2. Reference and any modifications**

Neutral Detergent Fiber in Feeds - Filter Bag Technique (for A200 and A200I), 2017, NDF Method, Method 6 (Ankom Technology)

<https://www.ankom.com/analytical-methods-support/fiber-analyzer-a200>

**3. Requirements for grinding and storage**

The filter bags are made so they can withhold 95% of particles larger than 30 µm.

The method can be used on most sample types, but the manufacturer recommends that the particle size is not smaller than 1 mm for samples grinded on cutting mills and not smaller than 2 mm for samples grinded on grinding mills to guarantee good results. Smaller particles will increase the probability of errors in the analysis results, since they can escape through the

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pores in the filter bag. This will lead to the NDF value being underreported and NDS (Neutral Detergent Solubles) will be overestimated.

The samples must be at room temperature.

#### 4. Contact persons

**Lab manager:** Hanne Kolsrud Hustoft

**Responsible for analysis:** Elin Kristoffersen / Heidi Askerud

#### 5. Additional literature

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2. McDonald, P., Edwards, P. A., Greenhalg, J. F. D., Morgan, C. A., 2002. Animal Nutrition, 7th edition, Prentice Hall, Harlow.
3. Mertens, D. R., 2002. Gravimetric Determination of Amylase-Treated Neutral Detergent Fiber in Feeds with Refluxing in Beakers or Crucibles: Collaborative Study, *J. AOAC. Int.*, 85 (6), 1217-1240
4. Uden, P, Robinson, P. H., Wiseman, J., 2005. Use of detergent system terminology and criteria for submission of manuscripts on new, or revised, analytical methods as well as descriptive information on feed analysis and / or variability. *Anim. Feed. Sci. Tech.*, 118, 181-186
5. Komarek A. R., 1994. Fiber Analysis System, Patent No. 5,370,007. Unites States Patent.

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