**METHOD SPECIFICATION**

**Faculty of Biosciences, NMBU**

**Method name: Crude fat -Accelerated Solvent Extraction (ASE)**

BIOVIT-no: Msp1045

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

Accelerated Solvent Extraction (ASE) is an alternative extraction method. The method is compared with the Soxhlet method with HCl hydrolysis (See Table 1).

The extraction takes place by pumping a solvent into an extraction cell (with the sample inside) which is then given a selected temperature and pressure. The extract is then transferred from the cell to a collection glass. The extract is placed in a water bath under nitrogen to evaporate the solvent and then dried in a vacuum oven. Finally, the sample is weighed.

This is a fast and straightforward method with low solvent consumption.

Table 1. Comparison of samples analyzed at IHA and AnalyCen

|  |  |  |
| --- | --- | --- |
|  | % fat IHA  | % fat AnalyCen\*   |
| Silage 1 | 3,6 | 3,7 |
| Silage 2 | 3,3 | 3,0 |
| Silage 3 | 2,6 | 2,6 |
| Microbes 400 | 15,9 | 14,9 |
| Microbes 438 | 7,5 | 8,9 |
| Bioprotein | 7,7 | 8,0 |
| Autolysat | 7,7 | 7,4 |
| Cat feed | 21,1 | 22,5 |
| Fish fertilizer | 3,3 | 3,1 |
| Mink fertilizer 10 | 3,8 | 4,6 |
| Mink fertilizer 11 | 4,7 | 4,4 |
| Mink feed | 25 | 30,2 |
| Pig fertilizer 1 | 6,6 | 6,2 |
| Pig fertilizer 4 | 7,3 | 7,4 |
| Pig feed | 5,4 | 5,4 |

\*% fat with HCl hydrolysis

**Main instrument:** ASE® 350 Accelerated Solvent Extractor (Dionex, USA)

**2. Reference and any modifications**

* 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.

Modification: The reference uses 100% petroleum ether, but for many types of samples either 20 or 30% acetone is required. See "Arb1045 crude fat" for more details.

**3. Requirements for the grinding and storage**

Dry samples must be grinded at 1 mm and stored at room temperature.

Liquid samples are stored in the refrigerator or freezer.

**4. Contact persons**

**Lab manager:** Hanne K. Hustoft

**Responsible for analysis:** Frank Sundby /Milena Bjelanovic

**5. Additional literature**

1. Technical Note 209; Sample Preparation Techniques for Food and Animal Feed Samples. Accelerated Solvent Extraction, (Dionex, USA)
2. Application Note 345; Extraction of Fat from Dairy Products (Cheese, Butter and Liquid Milks) Using Accelerated Solvent Extraction, (Dionex, USA)