

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

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**Method name: Total fat**

BIOVIT-no: Msp1052

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

Determination of total fat using Soxtec™ 8000 Extraction system in combination with Foss Hydrotec™ 8000 Hydrolysis system.

In some cases the fat is chemically or mechanically bound to e.g. carbohydrates, salts or proteins. Acid hydrolysis breaks these bonds – making it possible to extract the fat. For total fat determination the sample is treated under heating with hydrochloric acid. Hydrolysis makes chemically or mechanically bound fats accessible to solvent extraction. The residue is washed and dried and submitted to the following extraction procedure: fat is extracted using light petroleum as a solvent and the Randall modification of the Soxhlet method. The sample is weight into hydrocaps filters and submerged in boiling solvent prior to rinsing in cold solvent, reducing the time needed for extraction. The solvent dissolves fats, oils, pigments and other soluble substances. The extract is then transferred from the hydrocaps to collection aluminum cups. The collection aluminum cups are then placed in a drying cabinet for 30 minutes at 103 °C to evaporate the solvent. The resulting fat residue is determined gravimetrically after drying. This is a fast and straightforward method with low solvent consumption.

**Main instrument:** Hydrotec™ 8000 and Soxtec™ 8000 (FOSS, Denmark).

**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
  - Determination of crude oils and fats - page 37 (PART H).
  
- Application Note 320; Extraction of Total Fat Using Soxtec™ 8000 Extraction system and Hydrotec™ 8000 Hydrolysis System

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Modification: The Randall modification of the Soxhlet method. The sample is weight into cellulose thimbles and submerged in boiling solvent prior to rinsing in cold solvent, reducing the time needed for extraction.

### 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:** Milena Bjelanovic

### 5. Additional literature

- 1) Application Note 320 Extraction of Total Fat Using Soxtec™ 8000 Extraction system and Hydrotec™ 8000 Hydrolysis System (FOSS, Denmark).
- 2) Application Note 3485; Extraction of Total Fat in Hard Cheese (FOSS, Denmark).
- 3) Application Note 3989; Extraction of Total Fat in Mayonnaise (FOSS, Denmark).
- 4) Application Note 3988; Extraction of Total Fat in Fish (FOSS, Denmark).

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