

INTERNATIONAL STANDARD

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Animal feeding stuffs — Determination of fat content

Aliments des animaux — Détermination de la teneur en matière grasse



Foreword

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Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6492 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*, Subcommittee SC 10, *Animal feeding stuffs*.

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Animal feeding stuffs — Determination of fat content

1 Scope

This International Standard specifies a method for the determination of the fat content of animal feeding stuffs. The method is applicable to animal feeding stuffs except oilseeds and oilseed residues.

For the purposes of this method, the following two categories of animal feeding stuffs are distinguished. Samples of products in category B need a hydrolysis step prior to extraction.

Category B:

- straight feeds of animal origin including milk products;
- straight feeds of vegetable origin from which fats cannot be extracted without prior hydrolysis; in particular: gluten, yeast, soya and potato proteins, and heat-treated feeds;
- compound feeds containing the preceding products in such quantities that at least 20 % of the fat content stems from these products.

Category A:

- animal feeding stuffs not mentioned under category B.

NOTE For oilseed residues, a method for the determination of the "oil content" by hexane extraction is specified in ISO 734-1 [2], whereas a method for the determination of the "oil content" by diethyl ether extraction is specified in ISO 736 [3].

For oilseeds, a method for the determination of the "oil content" by hexane extraction is specified in ISO 659 [1].

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3696, *Water for analytical laboratory use — Specification and test methods*.

ISO 6498, *Animal feeding stuffs — Preparation of test samples*.

3 Term and definition

For the purposes of this International Standard, the following term and definition apply.

3.1

fat content

mass fraction of substances extracted from the sample by the procedure specified in this International Standard

NOTE The fat content is expressed in grams per kilogram. It may also be expressed as a mass fraction in percent.

4 Principle

4.1 Samples with a relative high fat content (at least 200 g/kg) undergo a preliminary extraction with light petroleum.

4.2 For samples of category B, the sample is hydrolysed with hydrochloric acid under heating. The solution is cooled and filtered. The residue is washed and dried then extracted with light petroleum. The solvent is removed by distillation and drying. The residue is weighed.

4.3 For samples of category A, the sample is extracted with light petroleum. The solvent is removed by distillation and drying. The residue is weighed.

5 Reagents and materials

Use only reagents of recognized analytical grade.

5.1 Water, complying with at least grade 3 in accordance with ISO 3696.

5.2 Sodium sulfate, anhydrous.

5.3 Light petroleum, consisting mainly of hydrocarbons with six carbon atoms, boiling range 40 °C to 60 °C.

The bromine value shall be less than 1. The evaporation residue shall be less than 20 mg/l.

Alternatively, technical hexane may be used having an evaporation residue of less than 20 mg/l.

5.4 Silicon carbide chips or glass beads.

5.5 Acetone.

5.6 Hydrochloric acid, $c(\text{HCl}) = 3 \text{ mol/l}$.

5.7 Filtration aid, for example diatomaceous earth (Kieselguhr), boiled for 30 min in hydrochloric acid, $c(\text{HCl}) = 6 \text{ mol/l}$, washed with water until acid-free, then dried at 130 °C.

6 Apparatus

Usual laboratory apparatus and, in particular, the following.

6.1 Extraction thimbles, free from fats and oils, ether-washed.

6.2 Soxhlet-type extractor, with syphoning volume of about 100 ml, or other recirculation extractor.

6.3 Heating apparatus, with temperature control, not liable to act as an ignition source.

6.4 Drying oven, capable of being maintained at $(103 \pm 2) \text{ °C}$.

6.5 Electrically heated vacuum oven, capable of being maintained at $(80 \pm 2) \text{ °C}$ and of reducing the pressure to less than 13,3 kPa, fitted with a device for the introduction of dry air or containing a desiccant, for example calcium oxide.

6.6 Desiccator, containing an efficient desiccant.