
International Standard



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Animal feeding stuffs — Determination of calcium content — Part 1 : Titrimetric method

Aliments des animaux — Détermination de la teneur en calcium — Partie 1 : Méthode titrimétrique

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Foreword

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International Standard ISO 6490/1 was prepared by Technical Committee ISO/TC 34, *Agricultural food products*.

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Animal feeding stuffs — Determination of calcium content —

Part 1 : Titrimetric method

1 Scope and field of application

This part of ISO 6490 specifies a titrimetric method for the determination of the calcium content of animal feeding stuffs.

The method is applicable to all animal feeding stuffs having calcium contents greater than 1 g/kg.

2 References

ISO 6490/2, *Animal feeding stuffs — Determination of calcium content — Part 2: Atomic absorption spectrometric method.*

ISO 6497, *Animal feeding stuffs — Sampling.*¹⁾

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

3 Principle

Ashing of a test portion, treatment of the ash with hydrochloric acid and precipitation of the calcium as calcium oxalate. Dissolution of the precipitate in sulfuric acid and titration with standard volumetric potassium permanganate solution of the oxalic acid formed.

4 Reagents

All reagents shall be of recognized analytical quality and the water used shall be distilled water or water of at least equivalent purity.

4.1 Hydrochloric acid, approximately 30 % (m/m)
($\rho_{20} = 1,15$ g/ml).

4.2 Nitric acid, concentrated ($\rho_{20} = 1,40$ g/ml).

4.3 Sulfuric acid, approximately 20 % (m/m)
($\rho_{20} = 1,13$ g/ml).

4.4 Ammonia solution, approximately 33 % (m/m)
($\rho_{20} = 0,89$ g/ml).

4.5 Ammonium oxalate, cold saturated solution.

4.6 Citric acid monohydrate, 300 g/l solution.

4.7 Ammonium chloride, 50 g/l solution.

4.8 Bromocresol green, 0,4 g/l solution.

4.9 Potassium permanganate, standard volumetric solution, $c(1/5 \text{ KMnO}_4) = 0,1$ mol/l.

5 Apparatus

Usual laboratory apparatus, and in particular

5.1 Electric muffle furnace, with air circulation, capable of being maintained at 550 ± 20 °C.

5.2 Incineration dish, made of platinum, silica or porcelain.

5.3 Sintered glass filter crucible, of porosity grade P 16 (pore size 10 to 16 μm).

5.4 Boiling water-bath.

5.5 Beakers, of capacity 250 ml.

5.6 Volumetric flask, of capacity 250 ml.

5.7 Analytical balance.

6 Sampling

Take the laboratory sample as specified in ISO 6497.

7 Procedure

7.1 Preparation of the test sample

Prepare the test sample in accordance with ISO 6498.

7.2 Test portion

Weigh, to the nearest 1 mg, approximately 5 g of the test sample (or more if necessary), into the incineration dish (5.2).

1) At present at the stage of draft.