
**Animal feeding stuffs — Determination
of amino acids content**

Aliments des animaux — Détermination de la teneur en acides aminés



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Contents

Page

| | |
|--|-----------|
| Foreword..... | iv |
| 1 Scope..... | 1 |
| 2 Principle..... | 1 |
| 2.1 Free amino acids..... | 1 |
| 2.2 Total amino acids..... | 2 |
| 3 Reagents and materials..... | 2 |
| 4 Apparatus..... | 4 |
| 5 Procedure..... | 4 |
| 5.1 Preparation of test sample..... | 4 |
| 5.2 Determination of free amino acids in feeding stuffs and premixtures..... | 4 |
| 5.3 Determination of total amino acids..... | 5 |
| 5.4 Chromatography..... | 6 |
| 6 Calculation of results..... | 7 |
| 7 Precision..... | 8 |
| 7.1 Interlaboratory tests..... | 8 |
| 7.2 Repeatability..... | 8 |
| 7.3 Reproducibility..... | 8 |
| 8 Use of reference materials..... | 8 |
| 9 Observations on the method..... | 8 |
| Annex A (informative) Results of interlaboratory tests..... | 10 |
| Annex B (informative) Examples of chromatograms..... | 15 |
| Bibliography..... | 17 |

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. 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.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 13903 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 10, *Animal feeding stuffs*.

ISO 13903 is based on Commission Directive 98/64/EC of September 1998 [1].

Animal feeding stuffs — Determination of amino acids content

1 Scope

This International Standard describes the determination of free (synthetic and natural) and total (peptide-bound and free) amino acids in feeding stuffs, using an amino acid analyser or HPLC equipment. It is applicable to the following amino acids:

- sum of cystine and cysteine;
- methionine;
- lysine;
- threonine;
- alanine;
- arginine;
- aspartic acid;
- glutamic acid;
- glycine;
- histidine;
- isoleucine;
- leucine;
- phenylalanine;
- proline;
- serine;
- tyrosine;
- valine.

The method does not distinguish between the salts of amino acids, nor does it differentiate between D and L forms of amino acids. It is not valid for the determination of tryptophan or hydroxy analogues of amino acids.

Limits of quantification depend on the chromatographic equipment, but levels as low as: 0,3 g/kg total lysine; 0,25 g/kg total methionine; 0,35 g/kg total cystine plus cysteine; 0,2 g/kg total threonine; 0,035 g/kg free lysine; 0,035 g/kg free methionine; and 0,03 g/kg free threonine can typically be analysed.

NOTE A lower limit of quantification or detection might be achievable but this is to be validated by the users.

2 Principle

2.1 Free amino acids

The free amino acids are extracted with dilute hydrochloric acid. Co-extracted nitrogenous macromolecules are precipitated with sulfosalicylic acid and removed by filtration. The filtered solution is adjusted to pH 2,20. The amino acids are separated by ion exchange chromatography and determined by reaction with ninhydrin with photometric detection at 570 nm.