



**SLOVENSKI STANDARD**  
**SIST EN ISO 14565:2001**  
**01-maj-2001**

---

Animal feeding stuffs - Determination of vitamin A content - Method using high-performance liquid chromatography (ISO 14565:2000)

Futtermittel - Bestimmung des Gehalts an Vitamin A - Verfahren mit Hochleistungs-Flüssigchromatographie (ISO 14565:2000)

Aliments des animaux - Détermination de la teneur en vitamine A - Méthode par chromatographie liquide a haute performance (ISO 14565:2000)

Ta slovenski standard je istoveten z: EN ISO 14565:2000

**ICS:**

65.120            Krmila                                    Animal feeding stuffs

**SIST EN ISO 14565:2001**                                    en

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 14565:2001](#)

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

EN ISO 14565

December 2000

ICS 06.012

English version

Animal feeding stuffs - Determination of vitamin A content -  
Method using high-performance liquid chromatography (ISO  
14565:2000)

Aliments des animaux - Détermination de la teneur en  
vitamine A - Méthode par chromatographie liquide à haute  
performance (ISO 14565:2000)

Futtermittel - Bestimmung des Gehalts an Vitamin A -  
Verfahren mit Hochleistungs-Flüssigchromatographie (ISO  
14565:2000)

This European Standard was approved by CEN on 1 December 2000.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>



EUROPEAN COMMITTEE FOR STANDARDIZATION  
COMITÉ EUROPÉEN DE NORMALISATION  
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

## Foreword

The text of the International Standard ISO 14565:2000 has been prepared by Technical Committee ISO/TC 34 "Agricultural food products" in collaboration with Technical Committee CEN/TC 327 "Animal feeding stuffs - Methods of sampling and analysis", the secretariat of which is held by NEN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by June 2001, and conflicting national standards shall be withdrawn at the latest by June 2001.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Endorsement notice

The text of the International Standard ISO 14565:2000 was approved by CEN as a European Standard without any modification.

NOTE: Normative references to International Standards are listed in annex ZA (normative).

# iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 14565:2001

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>



REPUBLIKA SLOVENIJA  
MINISTRSTVO KMETIŠTVA, GOZDARSTVA  
IN RAZVOJA KMETIŠTVA  
REPUBLIQUE DE SLOVÉNIE  
MINISTÈRE DE L'AGRICULTURE,  
DES FORÊTS ET DU DÉVELOPPEMENT  
RURAL

.....TAD  
BY THE NATIONAL BUREAU OF STANDARDS

**Annex ZA**  
(normative)**Normative references to international publications with their corresponding European publications**

This European Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

NOTE Where an International Publication has been modified by common modifications, indicated by (mod.), the relevant EN/HD applies.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 3696	1987	Water for analytical laboratory use - Specification and test methods	EN ISO 3696	1995

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 14565:2001](https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001)

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN ISO 14565:2001

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

INTERNATIONAL  
STANDARD

ISO  
14565

First edition  
2000-12-01

---

---

**Animal feeding stuffs — Determination of  
vitamin A content — Method using high-  
performance liquid chromatography**

*Aliments des animaux — Détermination de la teneur en vitamine A —  
Méthode par chromatographie liquide à haute performance*

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 14565:2001](https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001)

[https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-  
223d0a467c79/sist-en-iso-14565-2001](https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001)



Reference number  
ISO 14565:2000(E)

© ISO 2000

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

## iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 14565:2001

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

© ISO 2000

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.ch](mailto:copyright@iso.ch)  
Web [www.iso.ch](http://www.iso.ch)

Printed in Switzerland



## 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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 14565 was prepared by Technical Committee ISO/TC 34, *Food products*, Subcommittee SC 10, *Animal feeding stuffs*.

Annex A of this International Standard is for information only.

**ITeH STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 14565:2001](https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001)

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

[SIST EN ISO 14565:2001](https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001)

<https://standards.iteh.ai/catalog/standards/sist/4cc6b5b4-5bad-480d-b836-223d0a467c79/sist-en-iso-14565-2001>

# Animal feeding stuffs — Determination of vitamin A content — Method using high-performance liquid chromatography

## 1 Scope

This International Standard specifies a method for the determination of the total vitamin A (retinol) content of animal feeding stuffs and pet foods using high-performance liquid chromatography. The vitamin A content is the content of all-*trans*-retinyl alcohol and *cis*-isomers determined by the method described in this International Standard, and is expressed in International Units per kilogram (IU/kg).

## 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 documents referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 3696:1987, *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

#### vitamin A content

content of all-*trans*-retinyl alcohol and *cis*-isomers determined in accordance with this International Standard

NOTE The vitamin A content is expressed in International Units per kilogram (IU/kg); 1 IU of vitamin A is equal to 0,300 µg of all-*trans*-retinol.

## 4 Principle

The sample is saponified with ethanolic potassium hydroxide solution and the vitamin A is extracted into light petroleum. The light petroleum is removed by evaporation and the residue is dissolved in 2-propanol. The vitamin A concentration in the 2-propanol extract is determined by reverse-phase liquid chromatography using conditions that give a single peak for all retinol isomers.