TECHNICAL REPORT

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Food products — Guidance on how to express vitamins and their vitamers content

Produits alimentaires — Lignes directrices pour exprimer les teneurs en vitamines et en leurs vitamères

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 34, *Food products*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Vitamins can be naturally found in foods in different molecular forms. In more elaborated food products, vitamins can be used for fortification by adding several molecular forms with different levels of vitamin activity. There are regulations governing the addition of vitamins in food products. The authorized compounds for fortification depend on the type of food. Regulation deals with, for instance baby food or food supplements. The main problem is that the vitamin activities of the authorized compounds are not clearly described.

At the same time, it is not mandatory to list the chemical name of the compound used for food fortification purposes according to food labelling regulations. For example, vitamin E can be written in the list of ingredients without knowing if it is D-alpha tocopherol or D,L-alpha tocopherol, even though each molecular form presents different vitamin E activity.

ISO and CEN analytical standards express results in mass units related to the vitamin standard used for quantification. As expression in specific units of vitamin activity can be linked to regional/national regulatory requirements, analytical methods do not give guidance for this conversion. This document proposes ways to express the vitamin content in order to facilitate harmonization between different laboratories and also to reduce misunderstanding of the results expressed in vitamin content and in some cases in the vitamin activity of vitamers.

Food products — Guidance on how to express vitamins and their vitamers content

1 Scope

This document provides guidelines on:

— how to express vitamin quantity,

— the expression of different molecular forms in appropriate units,

— and in some cases, vitamin activity, according to vitamers present or used in food products, in addition to the quantitative content determination obtained from ISO and CEN analytical standards.

It provides information to be used as a basis for discussion between stakeholders and food control laboratories. It is not intended to be prescriptive or exhaustive.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
vitamer
any of a number of chemical compounds of a particular vitamin, generally having a similar molecular structure, each of which shows vitamin activity in a vitamin-deficient biological system

Note 1 to entry: See Reference [1].

4 Guidelines per vitamins

4.1 General

This document begins by addressing vitamin E, as this vitamin is considered to be the most complex in terms of variation of possible units of measurement. Vitamin E is followed by the other fat-soluble vitamins and water-soluble vitamins respectively.

To include the diversity of available conversion factors, regulations in different countries/regions are evaluated, including the European Union (EU), Regulations of the United States Food and Drug Administration (USFDA), United States of America (USA), National Standard (GB) of China, Food Standards Australia/New Zealand (FSANZ). In addition, standards of global organizations (CODEX[2]) are included.

