SLOVENSKI STANDARD
SIST EN 18027:2025

01-junij-2025

Bioizdelki - Ocenjevanje življenjskega cikla - Dodatne zahteve in smernice za primerjavo življenjskih ciklov bioizdelkov z njihovimi fosilnimi ekvivalenti

Bio-based products - Life cycle assessment - Additional requirements and guidelines for comparing the life cycles of bio-based products with their fossil-based equivalents

Biobasierte Produkte - Ökobilanzen - Zusätzliche Anforderungen und Leitlinien für den Vergleich der Lebenszyklen von biobasierten Produkten mit ihren fossilen Pendants

Produits biosourcés - Analyse du cycle de vie - Exigences et lignes directrices supplémentaires concernant la comparaison des cycles de vie de produits biosourcés avec leurs équivalents d'origine fossile

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13.020.55	Biološki izdelki	Biobased products
13.020.60	Življenjski ciklusi izdelkov	Product life-cycles

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English Version

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This European Standard was approved by CEN on 17 February 2025.

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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 CEN-CENELEC Management Centre has the same status as the official versions.

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

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Contents

Page

European foreword

This document (EN 18027:2025) has been prepared by Technical Committee CEN/TC 411 “Bio-based products”, the secretariat of which is held by SIS.

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of an identical text or by endorsement, at the latest by October 2025, and conflicting national standards shall be withdrawn at the latest by October 2025.

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

This document is complementary to EN 16760:2015 *Bio-based products – Life cycle assessment*.

Any feedback and questions on this document should be directed to the users’ national standards body. A complete listing of these bodies can be found on the CEN website.

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

Introduction

Bio-based products from forestry and agriculture have a long history of application, such as paper, board and various chemicals and materials. The last decades have seen the emergence of new bio-based products in the market. Some of the reasons for the increased interest lie in the benefits of bio-based products in relation to the depletion of fossil resources and climate change. Bio-based products can also provide additional product functionalities. These developments have triggered a wave of innovation with the development of knowledge and technologies allowing new transformation processes and product development.

Acknowledging the need for common standards for bio-based products, the European Commission issued mandate M/492[1], resulting in a series of standards developed by CEN/TC 411 during 2012-2017, with a focus on bio-based products other than food, feed and biomass for energy applications. This document was developed after the expiration of the mandate, upon the initiative of CEN/TC 411/WG 4.

The standards of CEN/TC 411 “Bio-based products” provide a common basis on the following aspects:

— common terminology;

— bio-based content determination;

— life cycle assessment (LCA);

— sustainability aspects; and

— declaration tools.

It is important to understand what the term bio-based product covers and how it is being used. The term ‘bio-based’ means 'derived from biomass'. Bio-based products (bottles, insulation materials, wood and wood products, paper, solvents, chemical intermediates, composite materials, etc.) are products which are wholly or partly derived from biomass. It is essential to characterize the amount of biomass contained in the product by, for instance, its bio-based content or bio-based carbon content.

The bio-based content of a product does not provide information on its environmental impact or sustainability, which can be assessed through LCA and sustainability criteria. In addition, transparent and unambiguous communication within bio-based value chains is facilitated by a harmonized framework for certification and declaration.

This document has been developed with the aim to set a framework for fair comparisons between fossil-based and bio-based product systems through LCA. Today, some comparisons have been made in a way which (consciously or unconsciously) disadvantages the bio-based product systems related to a number of aspects. Often, this is due to an incorrect application of LCA, and not being in full conformance with the international LCA standard EN ISO 14044. In this document some of these issues are addressed when setting the framework for how a correct study is to be performed.

The general methodology to perform LCAs of products is described in the standard mentioned above as well as in EN ISO 14040, EN ISO 14067 and, more specific for bio-based products, in EN 16760 and EN ISO 22526-1 to EN ISO 22526-3 and ISO 22526-4. However, significant problems often arise when it comes to making well-balanced comparative LCAs between bio-based and fossil-based product systems. This document provides additional requirements and guidelines to enable practitioners to perform comparative LCA studies involving bio-based products with equivalent fossil-based products and to disclose the results. Fossil resource use increases the total amount of carbon in the biosphere while bio-

[1] A mandate is a standardization task embedded in European trade laws. Mandate M/492 was addressed to the European Standardization bodies, CEN, CENELEC and ETSI, for the development of horizontal European Standards for bio-based products.