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Bio-based products — Requirements for Business to Business communication of characteristics using a Data Sheet

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National foreword

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Bio-based products - Requirements for Business to Business communication of characteristics using a Data Sheet

Produits biosourcés - Exigences relatives à la communication entre entreprises des caractéristiques à l'aide d'une Fiche Technique

Biobasierte Produkte - Anforderungen an die Kommunikation von Eigenschaften bei Firmenkundengeschäften unter Verwendung eines Datenblattes

This European Standard was approved by CEN on 19 October 2016.

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

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European foreword

This document (EN 16848:2016) has been prepared by Technical Committee CEN/TC 411 “Bio-based products”, 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of an identical text or by endorsement, at the latest by May 2017, and conflicting national standards shall be withdrawn at the latest by May 2017.

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.

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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 bio-based products' benefits in relation to the depletion of fossil resources and climate change. Bio-based products may also provide additional product functionalities. This has 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, with a focus on bio-based products other than food, feed and biomass for energy applications.

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

— 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, et cetera) 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 may 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.

The objective of this European Standard is to harmonize the use of claims which are relevant to describe characteristics of bio-based products for business to business communication. It is intended to give the structure for reporting and to improve transparency by specifying the criteria for the use of claims about different aspects of bio-based products. This standard was prepared based on the general principles outlined in ISO 14020.

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

1 Scope

This European Standard specifies requirements for transparent and non-misleading business to business communication of characteristics of bio-based products by means of a specific Data Sheet. It does not specify requirements for bio-based products.

This European Standard is intended to be used as a tool to generate and transfer information in the value chain and/or as an input for product-specific standards and certification schemes.

Business to consumer communication is covered by prEN 16935.[1]

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 16575, *Bio-based products - Vocabulary*

EN ISO 14020, *Environmental labels and declarations - General principles (ISO 14020)*

CEN/TS 16640, *Bio-based products - Determination of the bio based carbon content of products using the radiocarbon method*

EN 16785-1, *Bio-based products - Bio-based content - Part 1: Determination of the bio-based content using the radiocarbon analysis and elemental analysis*

prEN 16785-2:2015, *Bio-based products - Bio-based content - Part 2: Determination of the bio-based content using the material balance method*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 16575 and the following apply.

3.1
biomass origin
geographic origin(s) of the biomass used for the production of a bio-based product

EXAMPLE country, territory, water body.

3.2
claim
label
declaration
statement, symbol or graphic that indicates an aspect of a bio-based product

Note 1 to entry: It may take the form of a statement, symbol or graphic on a product or package label, in product literature, in technical bulletins, in advertising or in publicity, amongst other things.

[SOURCE: EN ISO 14021:2016, 3.1.4, modified: 'environmental' removed from term. 'product, a component or packaging' replaced by 'bio-based product', original note removed][2]

3.3
combustion
incineration
oxidation reaction covering both organic materials and metals

Note 1 to entry: Modern incineration plants are able to decouple energy efficiently and use it in the form of energy recovery. The term "incineration" in normal usage means the process of reducing solid waste volume by combustion with or without energy recovery. For the purpose of ISO 18605:2013, they refer only to the incineration process with energy recovery.

[SOURCE: ISO 18605:2013, 3.6] [3]

3.4
compost
soil conditioner obtained by biodegradation of a mixture consisting principally of vegetable residues, occasionally with other organic material and having a limited mineral content

[SOURCE: ISO 18606:2013, 3.1] [4]

3.5
composting
aerobic process designed to produce compost

[SOURCE: ISO 18606:2013, 3.2] [4]

3.6
consumer
individual member of the general public purchasing or using goods, property or services for private purposes

[SOURCE: ISO 14025:2006, definition 3.16] [5]

3.7
end-of-life
stage which begins when the used product is ready for disposal, recycling, reuse, etc. and ends when the product is returned to nature (combustion, deterioration), or is recycled or reused

[SOURCE: ISO 16759:2013, 3.3.3] [6]

3.8
energy recovery
production of useful energy through direct and controlled combustion

[SOURCE: ISO 15270:2008, 3.11] [7]

3.9
landfill
waste disposal site for the deposit of waste on to or into land under controlled or regulated conditions

[SOURCE ISO 15270, 3.18] [7]

3.10
material recycling
reprocessing, by means of a manufacturing process, of a used product material into a product, a component incorporated into a product, or a secondary (recycled) raw material; excluding energy recovery and the use of the product as a fuel

[SOURCE: ISO 18604:2013, 3.3, modified: Note 1 to entry has been deleted] [8]

3.11
net calorific value, q_{net}
absolute value of the specific energy of combustion, in joules, for unit mass of the fuel burned in oxygen under conditions of constant volume and such that all the water of the reaction products remains as water vapour (in a hypothetical state at 0,1 MPa), the other products being as for the gross calorific value, all at the reference temperature

Note 1 to entry: For the purpose of this European Standard, 'fuel' as indicated above means used product

[SOURCE: ISO 1928:2009, 3.1.3] [9]

3.12
organic recycling
through microbial activity, the controlled biological treatment of the biodegradable components of product waste which produce compost and, in the case of anaerobic digestion, also methane

Note 1 to entry: Landfilling and littering are not considered as organic recycling

[SOURCE: ISO 18606:2013, 3.9, modified: 'of used packaging' is replaced by 'of product waste'] [4]

3.13
Organization
person or group of people that has its own functions with responsibilities, authorities and relationships to achieve its objectives

Note 1 to entry: The concept of organization includes, but is not limited to, sole-trader, company, corporation, firm, enterprise, authority, partnership, association, charity or institution, or part or combination thereof, whether incorporated or not, public or private.

Note 2 to entry: This constitutes one of the common terms and core definitions for ISO management system standards given in Annex SL of the Consolidated ISO Supplement to the ISO/IEC Directives, Part 1. The original definition has been modified by modifying Note 1 to entry.

[SOURCE: EN ISO 9000:2015] [10]

3.14
supplier
organisation (3.13) or person that provides a bio-based product

EXAMPLE Producer, distributor, retailer or vendor of a product, or provider of a service or information.

Note 1 to entry: A supplier can be internal or external to the organization.

Note 2 to entry: In a contractual situation, a supplier is sometimes called "contractor".

[SOURCE: EN ISO 9000:2015 3.2.5, modified: 'provider' removed from term. 'organization that provides a product or service' is changed to 'organisation or person that provides a bio-based product'. Example;

'a service' is replaced by 'or provider of a service or information'. In note 1 to entry and note 2 to entry, 'provider' is replaced by 'supplier'.] [10]

4 Requirements for a declaration on bio-based products

4.1 General rules

The declaration shall be made by means of the Data Sheet for Bio-based products and shall be in accordance with EN ISO 14020. Further useful guidance is provided in EN ISO 14021.

It shall be clear whether the declaration concerns the packaging, packaging components, or the product.

A separate claim on a component of the product can only be made if this component can be separated and information is provided on how the component can be separated (if not self-evident).

The Data Sheet for bio-based products, with information on characteristics, shall be provided following the requirements specified in this European standard and using the template shown in Annex A.

The following information shall be provided:

- Product name (see 4.2.1) and supplier name (see 4.2.2);

- bio-based carbon content and bio-based content (4.3.2 and 4.3.3).

The following information should be provided. If this information is not provided, a justification shall be given:

- intended use (when specific), biomass type and origin (4.2.3, 4.2.4 and 4.2.5);

- biomass: information on aspects of sustainability (4.4);

- end of life (4.5).

Additional information may be provided (4.6).

The use of the prefix 'bio-' without additional information should be avoided, as explained in Annex A of EN 16575:2014 Vocabulary

4.2 Product identification

4.2.1 Product name

This information shall be available in order to unequivocally identify the product (e.g. type, grade, batch code, reference, trade name or trade mark, IUPAC Name, molecular formula, CAS Registry Number, EC Number).

4.2.2 Supplier name

This information shall be available in order to unequivocally identify the supplier. The address of the supplier and the contact details where further information can be requested shall be provided.

4.2.3 Intended use

Intended use should be indicated by providing, for instance, the industrial sector, one or more applications, or processing technologies.

4.2.4 Biomass type

The type of biomass used to produce the bio-based product (e.g. plants, trees, algae, marine organisms, microorganisms, animals) should be given.

4.2.5 Biomass origin

The geographic origin of the biomass used for the production of the bio-based product should be given.

4.3 Bio-based carbon content and bio-based content

4.3.1 General

There are two different ways of indicating the fraction of biomass used in a product: the bio-based carbon content and the bio-based content. It is important to clearly distinguish between these two approaches as, for the same products, the values can differ. Both values shall be declared.

The bio-based carbon content and the bio-based content of biomass [natural products such as wood (including pulp), flax, hemp, bamboo] are each equal to 100 %. Therefore it is not necessary to determine these contents by analytical methods.

NOTE If the material contains inorganic ingredients, which result in a large difference between the bio-based content and the bio-based carbon content, this information may be added in the section on additional information of the Data sheet as specified in 4.6.

4.3.2 Bio-based carbon content

The bio-based carbon content shall be either calculated or measured according to a recognized, widely accepted international, regional or national standard. The standard used shall be declared in the Data Sheet.

The reference method to determine the bio-based carbon content shall be CEN/TS 16640 in case of discrepancies.

The bio-based carbon content shall be reported as the minimum percentage of bio-based carbon in relation to the total carbon (TC) in the product.

4.3.3 Bio-based content

Bio-based content shall be reported as the minimum percentage of biomass content in relation to the total (dry) mass of the product.

The bio-based content shall be determined according to EN 16785-1 or EN 16785-2.

4.4 Information on aspects of biomass sustainability

If a statement on sustainability is made in this section of the datasheet, it shall be limited to the sustainability of the corresponding biomass fraction in the product. Sustainability information about any other fractions may be added, see 4.6 additional information

Relevant aspects of sustainability of biomass production are given in EN 16751.[11] Where information and/or a claim on sustainability of the biomass production is entered, this shall be made either according to a relevant internationally recognized standard or certification system for the production of the biomass used.

The standard(s)/certification system(s) used shall be stated. Relevant documentation, e.g. the reporting template in EN 16751[11] or a proof of compliance with an international standard should be available.

NOTE EN 15804 [12] provides aspects of sustainability for bio-based products used in the construction sector.

4.5 End of life

4.5.1 General

Information regarding the characteristics of the product that can be used to assess the potential environmental impact from different end of life options should be provided.

When the end-user is known, the requirements for claims on end of life options in EN ISO 14021 [2] shall be followed where applicable.

According to the waste hierarchy, waste generation should be prevented. In order of priority, the end of life of the product should be preparing for re-use, recycling, other recovery (e.g. energy recovery) then disposal.

NOTE The waste hierarchy is detailed in the European directive 2008/98/EC. [13]

4.5.2 Recycling and Energy recovery

4.5.2.1 Use of relevant standards

Existing standards for products and materials on reuse, recycling, energy recovery, and organic recovery should be applied. If no specific standards are available and if appropriate, then the standards for packaging may be a reference for some bio-based products.

4.5.2.2 Recycling

In order not to cross-contaminate wastes of different nature, and thus inhibit recycling performance, information on the recyclability of bio-based products/components should be provided where applicable.

For material recycling, means of identification to facilitate collection and recycling are provided for example for plastics: EN ISO 1043 [14], EN ISO 11469 [15] SPI code [16], and the Commission decision 97/129/EC [17]. Additional information may be provided on applicable sorting and recycling technologies.

For organic recycling, relevant standards for assessing biodegradation and compostability of products are available e.g. EN 13432 [18] and ISO 18606 [4] for packaging, EN 14995 [19] and ISO 17088 [20] for plastic products.

NOTE 1 Organic recycling is also known as biological recycling, meaning composting and anaerobic digestion.

NOTE 2 Generally for organic recycling it is important to specify the maximum thickness.

4.5.2.3 Energy recovery

The net calorific value q_{net} (MJ/kg) of the product should be determined and reported in accordance with ISO 1928 [9].

The proportion of the energy that is derived from the bio-based part of the product should be reported as the renewable energy, expressed as a percentage of q_{net}.

NOTE EN 13431 [21] defines and specifies the requirements for the determination of the thermodynamic values for the energy recovery of packaging and packaging waste following the method originally described by ISO 1928 [9].

4.5.3 Biodegradability characteristics for products used in nature

When the product is used and released in nature, information on biodegradability of the product should be reported along with the internationally recognized standard or methodology used. If a relevant product standard exists for a specific application and final environment and has been used, it should be quoted on the Data Sheet.

The specific conditions of the environment where release is taking place should be considered when investigating biodegradation characteristics.

EXAMPLE Some bio-based products are specifically designed to undergo end of life in the environment (e.g. bio-lubricants, agricultural products such as mulch film, rope or detergent).

NOTE There are product groups and product specific tests, standards, specifications and guidelines relating to the biodegradability of products in different environments. The KBBPPS Report on current relevant biodegradation [24] and Eco toxicity standards [20] gives a useful overview of the most relevant standards, specifications and OECD guidelines.

4.5.4 Managed disposal

Wastewater treatment and disposal in managed landfill are examples of managed disposal.

Biodegradability of the bio-based product can affect the management of disposal. The characteristics to assess the impact of the product in different managed disposal options are detailed in FprCEN/TR 16957 [22] and should be included in the Data Sheet.

4.6 Additional information

This is an optional field that may contain any additional information that is considered relevant for the business to business communication, e.g. certification references.

If an LCA related claim is made, it shall be based on the CEN standard EN 16760 [23] or other recognized, widely accepted international, regional or national standards or certification systems, based on a multi-stakeholder process.

Annex A
(normative)

Data Sheet for the declaration of the characteristics of bio-based products

Table A.1 specifies a template for a Data Sheet which shall be used for business to business reporting and communication of characteristics of bio-based products, including recovery and disposal options.

A response for each section shall be provided. Where the Data Sheet permits entry of "not relevant", a justification shall be given.

Table A.1 — Data Sheet

Data Sheet for Business to Business declaration for bio-based products according to EN 16848	
BIO-BASED PRODUCT IDENTIFICATION	
Product name(s) (e.g. trade mark and grade(s)/type(s))	
Supplier name and contact for further information	
Intended use (industrial sector and intended application) Otherwise: "not relevant" (including a justification)	
Biomass type(s) e.g. plants, trees, algae, marine organisms, microorganisms, animals. Otherwise: "not relevant" (including a justification)	
Biomass origin(s) Geographic origin as documented through the supply chain Otherwise: "not relevant" (including a justification)	
BIO-BASED CARBON CONTENT	
Minimum verifiable bio-based carbon in relation to the total carbon (%) The standard used for measuring or calculation shall be stated. The reference method to determine the bio-based carbon content shall be CEN/TS 16640 in case of discrepancies.	% Standard used:
BIO-BASED CONTENT	
Minimum verifiable biomass in relation to the total mass of the product (%) The bio-based content shall be determined according to EN 16785–1:2015 or prEN 16785–2:2015.	% Standard used:

BIOMASS SUSTAINABILITY	
Information on aspects of biomass sustainability according to EN 16751 [11] or another relevant internationally recognized standard or certification system. The standards / certification systems used shall be stated along with the corresponding biomass fraction. Otherwise: "not relevant" (including a justification)	Biomass fraction: Standard / certification system:
END OF LIFE OPTIONS	
Material recycling Identification Code for recycling (specify the identification system) Otherwise: "not relevant" (including a justification)	
Organic Recycling Reference to method in a relevant standard is required Otherwise: "not relevant" (including a justification) Note: Generally it is important to specify the maximum thickness	Reference method:
Energy recovery Net calorific value q_{net} (MJ/Kg) (according to ISO 1928 [9]) of the product Renewable energy as a percentage of q_{net}. Otherwise: "not relevant" (including a justification)	q_{net} (MJ/Kg) of the product: and: % renewable energy
Biodegradability characteristics for products used in nature Environment: According to (reference to a method in an international standard is required): % biodegradation and test duration Otherwise: "not relevant" (including a justification)	Environment: % biodegradation Reference method or standard: Test duration:
Managed disposal Characteristics necessary to assess the impact in different managed disposal options according to CEN/TR 16957:2016.[22]	Disposal characteristics:
Additional information e.g. certification references, information based on LCA	

ISSUED BY:……IN COMPLIANCE WITH EN 16848.

DATE:……..

Bibliography

[1] prEN 16935:2015, *Bio-based products - Requirements for Business-to-Consumer communication and claims*

[2] EN ISO 14021:2016, *Environmental labels and declarations - Self-declared environmental claims (Type II environmental labelling) (ISO 14021:2016)*

[3] ISO 18605:2013, *Packaging and the environment — Energy recovery*

[4] ISO 18606:2013, *Packaging and the environment — Organic recycling*

[5] ISO 14025:2006, *Environmental labels and declarations — Type III environmental declarations — Principles and procedures*

[6] ISO 16759:2013, *Graphic technology — Quantification and communication for calculating the carbon footprint of print media products*

[7] ISO 15270:2008, *Plastics — Guidelines for the recovery and recycling of plastics waste*

[8] ISO 18604:2013, *Packaging and the environment — Material recycling*

[9] ISO 1928:2009, *Solid mineral fuels — Determination of gross calorific value by the bomb calorimetric method and calculation of net calorific value*

[10] EN ISO 9000:2015, *Quality management systems - Fundamentals and vocabulary (ISO 9000:2015)*

[11] EN 16751:2016, *Bio-based products - Sustainability criteria*

[12] EN 15804:2012+A1:2013, *Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products*

[13] Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

[14] EN ISO 1043-1:2011, *Plastics - Symbols and abbreviated terms - Part 1: Basic polymers and their special characteristics (ISO 1043-1:2011)*

[15] EN ISO 11469:2000, *Plastics - Generic identification and marking of plastics products (ISO 11469:2000)*

[16] SPI codes, http://plastics.americanchemistry.com/Plastic-Resin-Codes-PDF

[17] 97/129/EC: Commission Decision of 28 January 1997 establishing the identification system for packaging materials pursuant to European Parliament and Council Directive 94/62/EC on packaging and packaging waste

[18] EN 13432:2000, *Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging*

[19] EN 14995, *Plastics - Evaluation of compostability - Test scheme and specifications*

[20] ISO 17088, *Specifications for compostable plastics*

[21] EN 13431:2004, *Packaging - Requirements for packaging recoverable in the form of energy recovery, including specification of minimum inferior calorific value*

[22] CEN/TR 16957:2016, *Bio-based products - Guidelines for Life Cycle Inventory (LCI) for the End-of-life phase*

[23] EN 16760:2015, *Bio-based products - Life Cycle Assessment*

[24] KBBPPS Knowledge Based Bio-based Products' Pre-Standardization Work package 6. Biodegradability. Deliverable N° 6.1: "Report on current relevant biodegradation and ecotoxicity standards". Prepared by B. De Wilde, N. Mortier & S. Verstichel (OWS), D. Briassoulis, M. Babou, A. Mistriotis & M. Hiskakis (Agricultural University of Athens). Downloadable from http://ows.be/wp-content/uploads/2014/04/KBBPPS-Deliverable-6.1-overview-biodegradation-standards.pdf

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