



SLOVENSKI STANDARD
oSIST prEN 17427:2020
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Embalaža - Zahteve in shema preskušanja vrečk za nošenje blaga, primernih za kompostiranje doma

Packaging - Requirements and test scheme for carrier bags suitable for treatment in well-managed home composting installations

Verpackung - Anforderungen an und Prüfmethode für heimkompostierbare Tragetaschen

Emballage - Exigences et méthodes d'essai pour les sacs de transport compostables à domicile

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Packaging - Requirements and test scheme for carrier bags suitable for treatment in well-managed home composting installations

Emballage - Exigences et méthodes d'essai pour les
sacs de transport compostables à domicile

Verpackung - Anforderungen an und Prüfmethode für
heimkompostierbare Tragetaschen

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 261.

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COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 17427:2020) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

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Introduction

EN 13432 specifies the requirements relating to packaging (including carrier bags) recovered through organic recycling (e.g. aerobic composting) in municipal or industrial biological waste treatment facilities. Carrier bags compliant with EN 13432 are thus called “compostable” to indicate that they are suitable for this recovery option. However, the term “composting” is also used to designate “home composting” and this can generate confusion in the citizen.

Home composting is a practice used by private individuals to treat garden and food waste generated at household level and produce compost for personal gardening use. In spite of the common name, industrial and home composting are two very different activities, the former being a controlled waste treatment process and the latter being a gardening activity.

Home composting is affected by the feeding regime (usually discontinuous in quality, quantity and intervals), by the composting style of the householder (accurate or careless), and by the local climatic conditions. The small dimensions of composting installations usually do not allow the generation of heat enough to sustain high temperatures.

As a result, conditions in home composting can be very different from conditions in industrial composting. As a result of this, a carrier bag recognized as “compostable” according to EN 13432 cannot automatically be considered as suitable for treatment in a well-managed home composting installation.

This document has been prepared in order to define the necessary characteristics of carrier bags for displaying biodegradation and disintegration behaviour compatible with well-managed home composting installations.

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1 Scope

This document specifies a testing scheme and requirements for the designation of carrier bags of any materials that are considered to be suitable for the incorporation into well-managed home composting installations run by householders for personal uses. Carrier bags are considered as suitable for home composting only if all the individual components meet the requirements.

The following five aspects are addressed:

- a) characterization;
- b) biodegradation;
- c) disintegration during home composting;
- d) compost quality;
- e) recognizability.

The first four aspects (a) to d)) are assessing the effects on the biological treatment process and the compost made by it. The fifth aspect ensures the recognizability of home compostable carrier bags by the end user.

This document forms the basis for the labelling of carrier bags of any material that are considered to be suitable for the incorporation into well-managed home composting installations.

NOTE 1 Compliance with the requirements of this document by the carrier bags entering the compost does not necessarily imply that a high-quality compost will be produced.

This document covers the home compostability of the carrier bags themselves but does not address regulations that may exist regarding the home compostability of any residual contents.

The testing scheme and the requirements specified by this document do not apply to worm composting and/or industrial composting.

It does not provide information on the biodegradability of carrier bags ending up in the environment as litter.

This document includes a reference to guides to well-managed home composting (Annex E).

Compost produced by a private individual is for his own use and not for provision to others, free of charge or in return for payment. This document has no value as a marketing authorization or authorization of use of the final compost.

NOTE 2 The testing scheme and evaluation criteria could be the basis for the establishment of suitability to home composting of other products.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TR 13695-2, *Packaging — Requirements for measuring and verifying the four heavy metals and other dangerous substances present in packaging, and their release into the environment — Part 2: Requirements for measuring and verifying dangerous substances present in packaging, and their release into the environment*

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EN 14582, *Characterization of waste — Halogen and sulfur content — Oxygen combustion in closed systems and determination methods*

prEN 17428, *Packaging — Determination of the degree of disintegration under simulated home composting conditions*

EN ISO 536, *Paper and board — Determination of grammage (ISO 536)*

EN ISO 11268-1, *Soil quality — Effects of pollutants on earthworms — Part 1: Determination of acute toxicity to Eisenia fetida/Eisenia andrei (ISO 11268-1)*

EN ISO 11268-2, *Soil quality — Effects of pollutants on earthworms — Part 2: Determination of effects on reproduction of Eisenia fetida/Eisenia andrei (ISO 11268-2)*

EN ISO 11269-2:2013, *Soil quality — Determination of the effects of pollutants on soil flora — Part 2: Effects of contaminated soil on the emergence and early growth of higher plants (ISO 11269-2:2012)*

EN ISO 12846, *Water quality — Determination of mercury — Method using atomic absorption spectrometry (AAS) with and without enrichment (ISO 12846)*

EN ISO 14851, *Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer (ISO 14851)*

EN ISO 14852, *Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by analysis of evolved carbon dioxide (ISO 14852)*

EN ISO 14855-1, *Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 1: General method (ISO 14855-1)*

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EN ISO 14855-2, *Determination of the ultimate aerobic biodegradability of plastic materials under controlled composting conditions — Method by analysis of evolved carbon dioxide — Part 2: Gravimetric measurement of carbon dioxide evolved in a laboratory-scale test (ISO 14855-2)*

prEN ISO 16929, *Plastics — Determination of the degree of disintegration of plastic materials under defined composting conditions in a pilot-scale test (ISO/DIS 16929)*

EN ISO 17294-2, *Water quality — Application of inductively coupled plasma mass spectrometry (ICP-MS) — Part 2: Determination of selected elements including uranium isotopes (ISO 17294-2)*

EN ISO 17556, *Plastics — Determination of the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved (ISO 17556)*

ISO 15685, *Soil quality — Determination of potential nitrification and inhibition of nitrification — Rapid test by ammonium oxidation*

OECD 208, *OECD Guidelines for the Testing of Chemicals, Section 2, Effects on Biotic Systems — Test No. 208: Terrestrial Plant Test: Seedling Emergence and Seedling Growth Test*

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 <https://www.electropedia.org/>

3.1

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]

3.2

composting

aerobic process designed to produce compost

Note 1 to entry: Composting is classified into industrial composting, home composting and worm composting.

[SOURCE: ISO 18606:2013, 3.2, modified – Note 1 to entry was added.]

3.3

industrial composting

composting process performed under controlled conditions on industrial scale with the aim of producing compost for the market

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Note 1 to entry: In some regions industrial composting is referred to as professional composting.

3.4

home composting

composting process performed by private individuals with the aim of producing compost for their own use

3.5

well-managed home composting

home composting practice which meets the minimum required conditions to convert biowaste into compost

Note 1 to entry: See Annex E.

3.6

worm composting

aerobic process using worms to recycle food scraps and other organic material into compost

Note 1 to entry: The final compost is also called vermicompost, or worm compost.

3.7

carrier bag

bag, with or without handles, supplied to consumers with the purpose of containing and carrying goods

prEN 17427:2020 (E)**3.8
disintegration**

physical breakdown of a material into very small fragments

[SOURCE: ISO 17088:2012, 3.6]

**3.9
total dry solids**

amount of solids obtained by taking a known volume of test material or compost and drying at about 105 °C to constant mass

[SOURCE: ISO 17088:2012, 3.9]

**3.10
intrinsic biodegradability**

ability of a material to be biodegraded, established under controlled laboratory conditions

**3.11
ultimate aerobic biodegradation**

breakdown of an organic compound by microorganisms in the presence of oxygen into carbon dioxide, water and mineral salts of any other elements present (mineralization) plus new biomass

[SOURCE: ISO 17088:2012, 3.10]

**3.12
"ready" biodegradation**

level of biodegradation achieved under defined conditions which indicates the test compound is considered likely to degrade rapidly and completely under aerobic aquatic environmental conditions

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[SOURCE: EN ISO 7827:2012, 3.6]

**3.13
volatile solids**

amount of solids obtained by subtracting the residue of a known volume of test material or compost after incineration at about 550 °C from the total dry solids of the same sample

Note 1 to entry: The volatile-solids content is an indication of the amount of organic matter present.

[SOURCE: ISO 17088:2012, 3.11]

**3.14
constituent**

<of a carrier bag material> all substances of which a carrier bag is composed of

Note 1 to entry: This includes but is not limited to any colourants and inks.

**3.15
organic constituent**

chemical constituent that contains carbon covalently linked to other carbon atoms and to other elements, most commonly hydrogen, oxygen or nitrogen

Note 1 to entry: Inorganic carbonates, carbides, cyanides and simple oxides such as carbon monoxide and carbon dioxide are not classified as organic constituent.

Note 2 to entry: Allotropes of carbon, such as diamond, graphite, carbon black, fullerenes, and carbon nanotubes are also not regarded as organic constituent.

3.16 component

<of a carrier bag> part of a carrier bag that can be separated by hand or by using simple physical means

3.17 inorganic filler

inert constituent added to a material to modify its strength, permanence, working properties or other qualities

3.18 organic carbon

amount of carbon bound in an organic material

[SOURCE: EN ISO 13833:2013, 3.4]

3.19 substances of very high concern SVHC

substances covered by legal provisions laid down in Regulation (EC) No 1907/2006 [1]

[SOURCE: EN 17033:2018, 3.4.2]

3.20 per- and poly-fluorinated substance (PFC)

organofluorine substance containing only carbon-fluorine bonds and carbon-carbon bonds but also other heteroatoms

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4 Principle

The purpose of this document is to establish requirements for carrier bags that can be treated in well-managed home composting installations.

A carrier bag is considered as suitable for home composting if all the components are suitable for home composting meeting the requirements of this document.

The suitability of carrier bags is verified by the test scheme described in this document.

5 General requirements

5.1 Assessment

5.1.1 General

Except as identified in 5.2 and 5.4, the assessment of the carrier bag or, if applicable, its individual components shall include the following four assessment procedures:

- characterization (see 5.1.2);
- biodegradation (see 5.1.3);
- disintegration (see 5.1.4);
- compost quality (see 5.1.5).

For recognizability see 5.1.6.

prEN 17427:2020 (E)**5.1.2 Characterization**

Each carrier bag under investigation or if applicable its components shall be identified and characterized prior testing, including at least:

- determination of the presence of regulated metals;
- evaluation of the presence of substances hazardous to the environment according to CEN/TR 13695-2;
- evaluation of the presence of substances of very high concern (SVHC);
- determination of volatile solids;
- other relevant identifying characteristics as specified in 6.2.3.

5.1.3 Biodegradation

To be designated as “suitable for home composting”, each component of the carrier bag, if applicable, shall be intrinsically and ultimately biodegradable as demonstrated in laboratory tests and shall conform to the criteria and pass levels given in 6.3.

5.1.4 Disintegration

To be designated as “suitable for home composting”, each component of the carrier bag, if applicable, shall disintegrate in a well-managed home composting process in conformance with the criteria and pass levels given in 6.4.

5.1.5 Compost quality

To be designated as “suitable for home composting”, no carrier bag and carrier bag component, if applicable, thereof, submitted to a biological waste treatment process, shall be recorded as having a negative effect on the quality of the resulting compost as specified in 6.5.

5.1.6 Recognizability

The carrier bag or carrier bag component “suitable for home composting” shall be recognizable as suitable for home composting by the end user by appropriate means.

5.2 Equivalent form

A carrier bag demonstrated to be in accordance with this document in a particular form, shall be accepted without additional tests as being in accordance with this document in any other form having the same or a smaller mass to surface ratio, the same or lower grammage or the same or lower thickness.

5.3 Carrier bag containing different components

The carrier bag or carrier bag component which is intended to undergo the home composting treatment shall be recognizable as home compostable by the end user by appropriate means.

In case of a carrier bag formed by different components, some of which are home compostable and some other not, the carrier bag itself, as a whole is not home compostable.

It shall be clearly specified which components of the carrier bag are home compostable.

EXAMPLE 1 A carrier bag with handles made of a different material and sealed to the bag: Handles which are sealed to the bag and cannot be easily detached are not components. The bag and the handles are considered as a whole.