



**SLOVENSKI STANDARD**  
**SIST EN 17427:2022**

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**Embalaža - Zahteve in shema preskušanja vrečk za nošenje blaga, primernih za razgradnjo v dobro vodenih gospodinjskih kompostnikih**

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 in einer kontrollierten Heimkompostieranlage

Emballage - Exigences et programme d'essai pour les sacs de transport aptes au traitement dans des installations de compostage domestique bien gérées

**Ta slovenski standard je istoveten z: EN 17427:2022**

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EUROPEAN STANDARD

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

Emballage - Exigences et programme d'essai pour les sacs de transport aptes au traitement dans des installations de compostage domestique bien gérées

Verpackung - Anforderungen an und Prüfmethode für heimkompostierbare Tragetaschen

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## Contents

European foreword.....	4
Introduction .....	5
1 Scope.....	6
2 Normative references.....	7
3 Terms and definitions .....	8
4 Principle .....	11
5 General requirements .....	11
5.1 Assessment.....	11
5.1.1 General.....	11
5.1.2 Characterization.....	11
5.1.3 Biodegradation .....	12
5.1.4 Disintegration.....	12
5.1.5 Compost quality.....	12
5.1.6 Labelling.....	12
5.2 Equivalent form .....	12
5.3 Carrier bag consisting of multiple components.....	12
5.4 Materials of natural origin.....	12
6 Detailed requirements.....	12
6.1 General.....	12
6.2 Characterization.....	12
6.2.1 Control of constituents.....	12
6.2.2 Volatile solids .....	14
6.2.3 Identifying characteristics.....	14
6.3 Ultimate aerobic biodegradation .....	15
6.3.1 General requirements .....	15
6.3.2 Specific requirements.....	17
6.3.3 Test duration .....	17
6.3.4 Validity criteria.....	17
6.4 Disintegration.....	18
6.4.1 General.....	18
6.4.2 Weight evaluation method of disintegration/Requirements .....	18
6.4.3 Test duration .....	18
6.5 Effects on compost quality.....	18
6.5.1 Compost production.....	18
6.5.2 Determination of negative effect to terrestrial organisms.....	19
6.5.3 Requirements.....	21
7 Test report.....	22
Annex A (normative) Determination of ecotoxic effects to higher plants.....	23
A.1 General.....	23
A.2 Properties of the reference substrate.....	23
A.3 Preparation of samples.....	23
A.4 Selection of plant species .....	23

<b>A.5</b>	<b>Performing the tests</b> .....	<b>24</b>
<b>A.6</b>	<b>Validity of the tests</b> .....	<b>24</b>
<b>A.7</b>	<b>Evaluation of the results</b> .....	<b>24</b>
<b>Annex B (normative)</b>	<b>Determination of acute ecotoxic effects to earthworms</b> .....	<b>25</b>
<b>B.1</b>	<b>General</b> .....	<b>25</b>
<b>B.2</b>	<b>Selection of the reference substrate</b> .....	<b>25</b>
<b>B.3</b>	<b>Preparation of samples</b> .....	<b>25</b>
<b>B.4</b>	<b>Selection of earthworm species</b> .....	<b>25</b>
<b>B.5</b>	<b>Performing the tests</b> .....	<b>25</b>
<b>B.6</b>	<b>Validity of the tests</b> .....	<b>25</b>
<b>B.7</b>	<b>Evaluation of the results</b> .....	<b>25</b>
<b>Annex C (normative)</b>	<b>Determination of chronic ecotoxic effects to earthworms</b> .....	<b>26</b>
<b>C.1</b>	<b>General</b> .....	<b>26</b>
<b>C.2</b>	<b>Selection of the reference substrate</b> .....	<b>26</b>
<b>C.3</b>	<b>Preparation of samples</b> .....	<b>26</b>
<b>C.4</b>	<b>Selection of earthworm species</b> .....	<b>26</b>
<b>C.5</b>	<b>Performing the tests</b> .....	<b>26</b>
<b>C.6</b>	<b>Validity of the tests</b> .....	<b>26</b>
<b>C.7</b>	<b>Evaluation of the results</b> .....	<b>27</b>
<b>Annex D (normative)</b>	<b>Determination of nitrification activity of soil microorganisms</b> .....	<b>28</b>
<b>D.1</b>	<b>General</b> .....	<b>28</b>
<b>D.2</b>	<b>Selection of the reference substrate</b> .....	<b>28</b>
<b>D.3</b>	<b>Preparation of samples</b> .....	<b>28</b>
<b>D.4</b>	<b>Performing the tests</b> .....	<b>28</b>
<b>D.5</b>	<b>Validity of the tests</b> .....	<b>28</b>
<b>D.6</b>	<b>Evaluation of the results</b> .....	<b>28</b>
<b>Annex E (informative)</b>	<b>Features of well-managed home composting</b> .....	<b>29</b>
<b>Annex F (informative)</b>	<b>Information about home composting</b> .....	<b>31</b>
<b>Bibliography</b>	.....	<b>33</b>

**EN 17427:2022 (E)****European foreword**

This document (EN 17427:2022) has been prepared by Technical Committee CEN/TC 261 “Packaging”, the secretariat of which is held by AFNOR.

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 December 2022, and conflicting national standards shall be withdrawn at the latest by December 2022.

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.

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.

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SIST EN 17427:2022

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## Introduction

EN 13432:2000 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 13432:2000 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 for 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. Despite 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 13432:2000 cannot automatically be considered as suitable for treatment in a well-managed home composting installation (*see 3.5 and Informative Annexes E and F*).

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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**EN 17427:2022 (E)****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 incorporation into well-managed home composting installations for non-commercial purposes with a home composting cycle of normally at least 12 months. Carrier bags are considered as home compostable in a well-managed system only if all the individual components meet the requirements.

The following four aspects are addressed:

- a) characterization;
- b) biodegradation in well managed home composting;
- c) disintegration in well managed home composting; and
- d) home compost quality.

The four aspects, a) to d), are assessing the effects on the biological treatment process and the compost made by it.

This document forms the basis for the labelling of carrier bags 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 suitability of carrier bags for the incorporation into well managed home composting installations but does not address regulations that may exist regarding the suitability of anything disposed together with the carrier bag to home composting.

This document provides a set of guidance on the parameters, boundaries and processes required to engage in well managed, aerobic, home composting. Alternative composting methods and systems may not provide the conditions necessary for the successful home composting of carrier bags which comply with the requirements of this document.

NOTE 2 Additional general information about home composting is provided in Annex F.

The testing scheme and the requirements specified by this document do not apply to worm composting, industrial composting nor community composting. It also does not provide information on the biodegradability of carrier bags ending up in the environment as litter.

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

The compost produced via home composting by a private individual is for private use only and not for provision to others, free of charge or in return for payment. Therefore, this document has no value as a marketing authorization or authorization of use of the final compost.

NOTE 3 The testing scheme and evaluation criteria could be the basis for the establishment of suitability to home composting of other products.

NOTE 4 The purpose of testing activity b) is to demonstrate the potential for ultimate biodegradation of the test material when exposed to microbes active under mesophilic conditions (between 15 °C and 45 °C).

NOTE 5 The purpose of testing activity c) is to verify the thickness and/or grammage that allows a full disintegration of the test product in a period consistent with a home composting cycle, under defined environmental conditions. To allow for the potential for variations of local climatic conditions and consumer application of well-managed home composting techniques, lower than optimal temperature profile has been adopted for this test.



## 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*

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

EN 17428:2022<sup>1</sup>, *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)*

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)*

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

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<sup>1</sup> Under preparation. Stage at the time of publication: FprEN 17428:2022.

**EN 17427:2022 (E)**

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 4591, *Plastics — Film and sheeting — Determination of average thickness of a sample, and average thickness and yield of a roll, by gravimetric techniques (gravimetric thickness)*

ISO 4593, *Plastics — Film and sheeting — Determination of thickness by mechanical scanning*

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**

organic 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: EN ISO 20200:2015, 3.1]

**3.2  
composting**

aerobic process designed to produce compost

Note 1 to entry: Composting is classified into industrial composting, community 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

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 a minimum set of required conditions to convert biowaste into compost

Note 1 to entry: See Annex E.

Note 2 to entry: For home composting a usual cycle time is at least 12 months.

### 3.6

#### **community composting**

controlled waste treatment process of organic waste collected from small neighbourhood or produced by centralised sources (e.g. hospitals, canteens, restaurants) usually at a scale bigger than home composting and smaller than industrial composting

### 3.7

#### **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.

### 3.8

#### **carrier bag**

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

### 3.9

#### **disintegration**

physical breakdown of a material into very small fragments

[SOURCE: EN ISO 20200:2015, 3.4]

### 3.10

#### **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: EN ISO 20200:2015, 3.8]

### 3.11

#### **intrinsic biodegradability**

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

### 3.12

#### **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 17088:2021, 3.10]

**EN 17427:2022 (E)****3.13****“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

[SOURCE: EN ISO 7827:2012, 3.6]

**3.14****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: EN ISO 20200:2015, 3.9]

**3.15****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.

**3.16****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.

**3.17****component**

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

EXAMPLES handles, lining, windows

**3.18****organic carbon**

amount of carbon bound in an organic material

[SOURCE: EN ISO 13833:2013, 3.4]

**3.19****per- and polyfluoroalkyl substances****PFAS**

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