

---

**Embalaža - Načrtovanje za recikliranje plastične embalaže - Smernica za načrtovanje za recikliranje fleksibilne embalaže iz biorazgradljive plastike**

Packaging - Design for recycling for plastic packaging products - Guideline for design for recycling of flexible packaging made of biodegradable plastics

Verpackung - Recyclingorientierte Gestaltung von Kunststoffverpackungsprodukten - Leitfaden für die recyclingorientierte Gestaltung von flexiblen Verpackungen aus biologisch abbaubaren Kunststoffen

Sample Document

get full document from [standards.iteh.ai](https://standards.iteh.ai)

**Ta slovenski standard je istoveten z: FprCEN/TS 18383**

---

**ICS:**

|           |                                            |                                                |
|-----------|--------------------------------------------|------------------------------------------------|
| 13.030.50 | Recikliranje                               | Recycling                                      |
| 55.020    | Pakiranje in distribucija blaga na splošno | Packaging and distribution of goods in general |
| 83.080.20 | Plastomeri                                 | Thermoplastic materials                        |

**kSIST-TS FprCEN/TS 18383:2026**      **en,fr,de**

# Sample Document

get full document from [standards.iteh.ai](https://standards.iteh.ai)

TECHNICAL SPECIFICATION  
SPÉCIFICATION TECHNIQUE  
TECHNISCHE SPEZIFIKATION

**FINAL DRAFT**  
**FprCEN/TS 18383**

July 2026

ICS 13.030.50; 55.020; 83.080.20

English Version

**Packaging - Design for recycling for plastic packaging products - Guideline for design for recycling of flexible packaging made of biodegradable plastics**

Verpackung - Recyclingorientierte Gestaltung von Kunststoffverpackungsprodukten - Leitfaden für die recyclingorientierte Gestaltung von flexiblen Verpackungen aus biologisch abbaubaren Kunststoffen

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

CEN members are the national standards bodies of 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 United Kingdom.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**Warning :** This document is not a Technical Specification. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a Technical Specification.



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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

© 2026 CEN All rights of exploitation in any form and by any means reserved worldwide for CEN national Members.

Ref. No. FprCEN/TS 18383:2026 E

| <b>Contents</b>                                                                                 | <b>Page</b> |
|-------------------------------------------------------------------------------------------------|-------------|
| <i>European foreword</i> .....                                                                  | 3           |
| <i>Introduction</i> .....                                                                       | 4           |
| <b>1 Scope</b> .....                                                                            | 6           |
| <b>2 Normative references</b> .....                                                             | 6           |
| <b>3 Terms and definitions</b> .....                                                            | 6           |
| <b>4 Compatibility of biodegradable flexible plastic packaging designs with recycling</b> ..... | 8           |
| 4.1 General characteristics .....                                                               | 8           |
| 4.2 Sortability .....                                                                           | 9           |
| 4.3 Design guidelines summary table .....                                                       | 9           |
| <i>Bibliography</i> .....                                                                       | 25          |

# Sample Document

get full document from [standards.iteh.ai](https://standards.iteh.ai)

## **European foreword**

This document (FprCEN/TS 18383:2026) 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 Vote on TS.

# Sample Document

get full document from [standards.iteh.ai](https://standards.iteh.ai)

## Introduction

Biodegradable plastics are polymeric materials able to be broken down by biological processes under aerobic conditions to carbon dioxide, water and mineral salts of any other elements present (mineralization) and new biomass.

Biodegradability is an intrinsic property that is determined by the fundamental chemical composition and structure of a material. Chemical bonds of biodegradable polymers are recognized by naturally occurring enzymes and the biodegradability of polymeric materials is determined by the chemical structure responsible for functional group stability, reactivity, hydrophilicity and swelling behaviour.

The rate and extent of biodegradation depend on the polymer's chemical composition, crystallinity, molecular weight, and environmental parameters such as temperature, moisture, pH, and microbial community composition.

Recycling is generally defined by the Waste Framework Directive (2008/98/EC) as any recovery operation where waste materials are reprocessed into products, materials, or substances for original or other purposes. It includes organic material reprocessing but excludes energy recovery and conversion into fuels or materials for backfilling.

On the other hand, according to the PPWR, material recycling refers specifically to the reprocessing of waste into materials or substances, excluding biological treatment, organic material reprocessing, energy recovery, and conversion into fuels or backfilling materials.

Following the Regulation (EU) 2025/40<sup>1</sup>, known as the Packaging and Packaging Waste Regulation ("PPWR") most packaging placed on the market, including packaging made of biodegradable plastic polymers and other biodegradable materials, shall be recyclable i.e. it is designed for material recycling, and when it becomes waste, it can be collected separately and sorted into specific waste streams without affecting the recyclability of other waste streams and recycled at scale. However, certain compostable packaging is exempt from meeting material recycling requirements due to a derogation (in line with Article 9.1 and 9.2 of the PPWR).

On this basis, different types of packaging made from biodegradable plastics can be created that need to be managed appropriately.

- The first type comprises packaging made from biodegradable plastics that falls within packaging applications that are required by European or national laws to be compatible with the standard for composting in industrially controlled conditions in bio-waste treatment facilities. This packaging is marked with labels as compostable and enter the biodegradable waste stream (known as bio-waste). It is not recycled as material but converted into compost or similar substances. Compostable packaging generally needs to fulfil a number of requirements, including being made from biodegradable materials and containing undesirable substances at levels below certain predetermined thresholds. It also may not negatively impact the final compost end product. The characteristics of compostable packaging are defined by a relevant European standard (EN 13432).
- The second type comprises packaging made from biodegradable plastics that would need to be recovered by material recycling because the derogation is only applied to some territories. There is growing interest in certain packaging formats that can be recycled in both the bio-waste stream and the material recycling stream, depending on local regulations and infrastructure.
- The third type concerns packaging made from biodegradable plastics that is not intended to be recovered by organic recycling, either due to the decision of the person placing it on the market or current regulations. In this case, the use of biodegradable plastic is not motivated by its biodegradability, but by other factors. The fact that it is biodegradable is incidental; this

<sup>1</sup> Regulation (EU) 2025/40 of the European Parliament and of the Council of 19 December 2024 on packaging and packaging waste (commonly known as the "PPWR")

characteristic is neither communicated nor used for recovery purposes. It is important to note that this is already the case with other biodegradable packaging materials, such as paper-based packaging, which, despite being predominantly made of a biodegradable material (i.e. cellulose), are generally recovered by material recycling and not labelled as compostable. In this case, the packaging needs to be designed to enable material recycling, but it is not required to show biodegradability according to the criteria defined in the relevant European standard for compostable packaging.

This document addresses the second and the third types of packaging.

Biodegradable polymers such as polylactic acid (PLA), aliphatic-aromatic polyesters, and polyhydroxyalkanoates (PHA), can be used to produce plastic packaging that can be recycled similarly to PET. However, the adoption of packaging made of biodegradable plastics is currently limited compared to widely used plastics like PE, PP, PET and separate sorting and recycling systems still need to be built up at scale. Therefore, this technical specification (TS) is based on experiences from other plastics and from ongoing European projects aimed at scaling up sorting and recycling procedures.

The objective of this TS is to facilitate consistent design for recycling criteria for packaging made from biodegradable plastics, ensuring that when sorting and recycling infrastructure mature, these specifications can be smoothly incorporated into the broader standard framework. **This document provides guidance based on current technological capabilities and does not represent state-of-the-art collection, sorting and recycling as defined in EN 18120.** As technical developments progress and further consensus is achieved the content of this Technical Specification may be subject to modification, review and revision.

This technical specification (TS) intends to follow the philosophy of EN 18120 consisting of 15 parts. Given the early market implementation in Europe of packaging made from biodegradable plastics and the low volumes of such packaging currently in the waste streams, existing material recycling technologies for packaging waste made from biodegradable plastics (with levels of maturity varying depending on the polymer type) do not currently fit into the “state-of-the-art” definition as set in EN 18120. Therefore, these TS are proposed outside the scope of EN 18120 at this stage, while maintaining its philosophy and structure as closely as possible. EN 18120 aims via a series of guidelines and protocols to establish consistency and improvement for the Design for recycling for household, industrial and commercial plastic packaging products.

Design for recycling guidelines are a common way of describing compatibility with plastic packaging collection, sorting and recycling into recycled plastic. They provide guidance on the level compatibility, defined as:

- Green: Packaging constituents with full compatibility with collection, sorting and recycling;
- Yellow: Packaging constituents with limited compatibility with collection, sorting and recycling;
- Red: Packaging constituents which are not compatible with collection, sorting and recycling.

Recyclability guidelines will require regular review and improvement to reflect innovations in design, collection, sorting and recycling.

The Design for Recycling Guidelines provided cover all steps from design for recycling, packaging waste collection, sorting, recycling into recycled plastic and to use in a new application. Compliance with the design guidelines does not guarantee that the recycled plastic quality will be fit for purpose for a specific targeted end application or compliant with applicable regulations.

Packaging recyclability is the combination of design for recycling, proven collection, sorting, and recycling.