

INTERNATIONAL
STANDARD

ISO
17088

Third edition
2021-04

**Plastics — Organic recycling —
Specifications for compostable
plastics**

*Plastiques — Recyclage organique — Spécifications pour les
plastiques compostables*



Reference number
ISO 17088:2021(E)

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Published in Switzerland

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 14, *Environmental aspects*.

This third edition cancels and replaces the second edition (ISO 17088:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- in [Clause 3](#):
 - the following terms have been added: organic recycling, anaerobic digestion, per- and poly-fluorinated compound, well-managed industrial composting process, industrial composting, organic constituents, home composting;
 - the term catalyst has been deleted;
- 6.1.4 has been deleted;
- a new subclause, [6.2.2](#), on variation in permitted thickness has been added;
- in [6.3](#), requirements regarding biodegradability of constituents have been revised;
- in [6.3.1.1](#), the following references have been added as additional laboratory test methods for biodegradation testing: ISO 14851, ISO 14852, ISO 17556;
- a new subclause, [6.3.2](#), on potential for biogas production has been added;
- [6.4](#) has been extended covering ecotoxicity tests with representative species from three trophic levels;
- in [6.5](#), new requirements regarding control of constituents with respect to per- and poly-fluorinated compounds (PFCs) and hazardous substances (as specified in [Annex B](#)) have been included;
- the list of regulated metals in EU + EFTA countries has been revised;

— new annexes, [Annex B](#), [Annex C](#), [Annex E](#) and [Annex F](#), have been added.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Management of solid wastes is a problem of growing interest around the world. Cities, towns and countries are attempting to divert more materials from disposal (landfills and incineration without energy recovery) by performing different recovery options in order to transform waste into usable products. Plastics recovery technologies include material recovery (mechanical recycling, chemical or feedstock recycling, and biological or organic recycling) and the recovery of energy in the form of usable heat under controlled combustion conditions.

This document intends to correctly identify compostable plastics, and compostable products made from plastics, which can be recovered by organic recycling, i.e. will disintegrate and biodegrade satisfactorily together with biowaste producing compost as an outcome, in composting or in anaerobic digestion followed by composting, and will not leave any persistent or hazardous residues.

Plastics — Organic recycling — Specifications for compostable plastics

WARNING — Sewage, activated sludge, soil and compost might contain potentially pathogenic organisms. Therefore, appropriate precautions should be taken when handling them. Toxic test, compounds and those whose properties are unknown should be handled with care.

1 Scope

This document specifies procedures and requirements for plastics, and products made from plastics, that are suitable for recovery through organic recycling. The four following aspects are addressed:

- a) disintegration during composting;
- b) ultimate aerobic biodegradation;
- c) no adverse effects of compost on terrestrial organisms;
- d) control of constituents.

These four aspects are suitable to assess the effects on the industrial composting process.

This document is intended to be used as the basis for systems of labelling and claims for compostable plastics materials and products.

This document does not provide information on requirements for the biodegradability of plastics which end up in the environment as litter. It is also not applicable to biological treatment undertaken in small installations by householders.

NOTE 1 The recovery of compostable plastics through composting can be carried out under the conditions found in well-managed industrial composting processes, where the temperature, water content, aerobic conditions, carbon/nitrogen ratio and processing conditions are optimized. Such conditions are generally obtained in industrial and municipal composting plants. Under these conditions, compostable plastics disintegrate and biodegrade at rates comparable to yard trimmings, kraft paper bags and food scraps.

NOTE 2 “Compostable” or “compostable in municipal and industrial composting facilities” are expressions considered to be equivalent to organically recyclable for the purposes of this document.

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.

ISO 472, *Plastics — Vocabulary*

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

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

ISO 11269-2, *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 14851, *Determination of the ultimate aerobic biodegradability of plastic materials in an aqueous medium — Method by measuring the oxygen demand in a closed respirometer*