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Standards

Irish Standard  
I.S. EN ISO 10210:2017

# Plastics - Methods for the preparation of samples for biodegradation testing of plastic materials (ISO 10210:2012)

## I.S. EN ISO 10210:2017

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## National Foreword

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EUROPEAN STANDARD

EN ISO 10210

NORME EUROPÉENNE

EUROPÄISCHE NORM

December 2017

ICS 83.080.01

English Version

## Plastics - Methods for the preparation of samples for biodegradation testing of plastic materials (ISO 10210:2012)

Plastiques - Méthodes de préparation des échantillons pour les essais de biodégradation des matériaux plastiques (ISO 10210:2012)

Kunststoffe - Probenvorbereitung für die Bestimmung der Bioabbaubarkeit von Kunststoff-Materialien (ISO 10210:2012)

This European Standard was approved by CEN on 17 October 2017.

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<b>Contents</b>	<b>Page</b>
<b>European foreword.....</b>	<b>3</b>

## **European foreword**

The text of ISO 10210:2012 has been prepared by Technical Committee ISO/TC 61 “Plastics” of the International Organization for Standardization (ISO) and has been taken over as EN ISO 10210:2017 by Technical Committee CEN/TC 249 “Plastics” the secretariat of which is held by NBN.

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of an identical text or by endorsement, at the latest by June 2018, and conflicting national standards shall be withdrawn at the latest by June 2018.

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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### **Endorsement notice**

The text of ISO 10210:2012 has been approved by CEN as EN ISO 10210:2017 without any modification.

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# INTERNATIONAL STANDARD

**ISO  
10210**

First edition  
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## **Plastics — Methods for the preparation of samples for biodegradation testing of plastic materials**

*Plastiques — Méthodes de préparation des échantillons pour les essais  
de biodégradation des matériaux plastiques*



Reference number  
ISO 10210:2012(E)

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**ISO 10210:2012(E)**



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# Contents

Page

<b>Foreword</b>	<b>iv</b>
<b>Introduction</b>	<b>v</b>
<b>1 Scope</b>	<b>1</b>
<b>2 Normative references</b>	<b>1</b>
<b>3 Terms and definitions</b>	<b>2</b>
<b>4 Principle</b>	<b>3</b>
<b>5 Reagents</b>	<b>3</b>
5.1 Solid carbon dioxide	3
5.2 Liquid nitrogen	3
<b>6 Apparatus</b>	<b>3</b>
6.1 Sieves	3
6.2 Rotor mill	4
6.3 Rotating mechanical mixer	4
6.4 Ball mill	4
6.5 Sieve shaker	4
6.6 Microscope	4
<b>7 Procedure</b>	<b>4</b>
7.1 Preparation and dimensional control of test material prior to size reduction	4
7.2 Powder/pellet/granule test material	4
7.3 Film and sheet test material	5
7.4 Test material in the form of products	5
7.5 Storage	5
<b>8 Calculation and expression of results</b>	<b>6</b>
8.1 Particle size distribution	6
<b>9 Validity of preparation</b>	<b>6</b>
<b>10 Sample preparation report</b>	<b>6</b>
<b>Annex A (informative) Examples of the preparation and testing of powder test samples produced from pellets by milling using a rotating mechanical mixer</b>	<b>7</b>
<b>Annex B (informative) Examples of the preparation and testing of film and powder test samples produced from PLA film and pellets</b>	<b>13</b>
<b>Annex C (informative) Examples of test samples produced from a plastic product</b>	<b>15</b>
<b>Annex D (informative) Shape and size of pieces of test material used in ISO standards for biodegradation testing of plastics</b>	<b>17</b>
<b>Bibliography</b>	<b>19</b>

## **ISO 10210:2012(E)**

### **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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 10210 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*.

## **Introduction**

Plastics recovery technology includes material recycling, organic recycling and energy recovery. The use of biodegradable plastics is one of the valuable recovery options in the field of organic recycling.

ISO standards for determining the ultimate aerobic and anaerobic biodegradability of plastic materials in an aqueous medium, activated sludge, compost, digesting sludge and soil have been published. These standards include ISO 14851, ISO 14852, ISO 14853, ISO 14855-1, ISO 14855-2, ISO 15985 and ISO 17556. For the user of these standards, it might be difficult to compare biodegradation changes during a test, even when using the same samples, due to differences in the test conditions. These differences might arise from the compost preparation, the test preparation methodology, the shape and/or size of the test sample, etc. Accurate comparison of biodegradability data for the same plastic material can be difficult to achieve unless the conditions specified in the standards are accurately followed.

A unified approach to test sample preparation is important in achieving consistency within the standards mentioned above. The methods described in this document help to provide a consistent approach to sample preparation techniques for biodegradation testing of plastic materials.



# Plastics — Methods for the preparation of samples for biodegradation testing of plastic materials

**WARNING** — The use of this International Standard might involve hazardous materials, operations and equipment. This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and to determine the applicability of regulatory limitations prior to use.

## 1 Scope

This International Standard describes methods for the preparation of test samples used in the determination of the ultimate aerobic and anaerobic biodegradability of plastic materials in an aqueous medium, soil, controlled compost or anaerobic digesting sludge. The methods described are designed to provide dimensional consistency of test samples, resulting in improved reproducibility of test results during the determination of the ultimate biodegradability of the product.

These methods apply to the following materials:

- natural and/or synthetic polymers, copolymers or mixtures of these;
- plastic materials that contain additives, such as plasticizers or colorants;
- plastic composite materials that contain organic or inorganic fillers;
- products made from the above materials.

## 2 Normative references

The following referenced documents are indispensable for the application 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 3310-1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*

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

ISO 14853, *Plastics — Determination of the ultimate anaerobic biodegradation of plastic materials in an aqueous system — Method by measurement of biogas production*

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 14855-2, *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 15985, *Plastics — Determination of the ultimate anaerobic biodegradation and disintegration under high-solids anaerobic-digestion conditions — Method by analysis of released biogas*

ISO 17088, *Specifications for compostable plastics*

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