



**SLOVENSKI STANDARD**  
**SIST EN ISO 17556:2005**

**01-marec-2005**

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Plastics - Determination of the ultimate aerobic biodegradability in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved (ISO 17556:2003)

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Kunststoffe - Bestimmung der vollständigen aeroben biologischen Abbaubarkeit im Boden durch Messung des Sauerstoffbedarfs in einem Respirometer oder der Menge des entstandenen Kohlendioxids (ISO 17556:2003)

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Plastiques - Détermination de la biodégradabilité aérobie ultime dans le sol par mesure de la demande en oxygene dans un respirometre ou de la teneur en dioxyde de carbone libéré (ISO 17556:2003)

**Ta slovenski standard je istoveten z: EN ISO 17556:2004**

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**ICS:**

83.080.01	Polimerni materiali na splošno	Plastics in general
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**SIST EN ISO 17556:2005**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**EN ISO 17556**

December 2004

ICS 83.080.01

English version

**Plastics - Determination of the ultimate aerobic biodegradability  
in soil by measuring the oxygen demand in a respirometer or the  
amount of carbon dioxide evolved (ISO 17556:2003)**

Plastiques - Détermination de la biodégradabilité aérobie  
ultime dans le sol par mesure de la demande en oxygène  
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biologischen Abbaubarkeit im Boden durch Messung des  
Sauerstoffbedarfs in einem Respirometer oder der Menge  
des entstandenen Kohlendioxids (ISO 17556:2003)

This European Standard was approved by CEN on 21 December 2004.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



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

**Management Centre: rue de Stassart, 36 B-1050 Brussels**

**EN ISO 17556:2004 (E)****Foreword**

The text of ISO 17556:2003 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 17556:2004 by Technical Committee CEN/TC 249 "Plastics", the secretariat of which is held by IBN.

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 2005, and conflicting national standards shall be withdrawn at the latest by June 2005.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

**Endorsement notice**

The text of ISO 17556:2003 has been approved by CEN as EN ISO 17556:2004 without any modifications.

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# INTERNATIONAL STANDARD

**ISO**  
**17556**

First edition  
2003-08-01

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## Plastics — Determination of the ultimate aerobic biodegradability in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved

*Plastiques — Détermination de la biodégradabilité aérobie ultime dans le sol par mesure de la demande en oxygène dans un respiromètre ou de la teneur en dioxyde de carbone libéré*

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Reference number  
ISO 17556:2003(E)

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## ISO 17556:2003(E)

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## Contents

Page

<b>1</b>	<b>Scope</b> .....	<b>1</b>
<b>2</b>	<b>Normative references</b> .....	<b>1</b>
<b>3</b>	<b>Terms and definitions</b> .....	<b>2</b>
<b>4</b>	<b>Principle</b> .....	<b>3</b>
<b>5</b>	<b>Test environment</b> .....	<b>3</b>
<b>6</b>	<b>Materials</b> .....	<b>3</b>
<b>7</b>	<b>Apparatus</b> .....	<b>4</b>
<b>8</b>	<b>Procedure</b> .....	<b>4</b>
<b>9</b>	<b>Calculation and expression of results</b> .....	<b>7</b>
<b>10</b>	<b>Validity of results</b> .....	<b>9</b>
<b>11</b>	<b>Test report</b> .....	<b>9</b>
<b>Annex A</b> (informative)	<b>Principle of a manometric respirometer</b> .....	<b>10</b>
<b>Annex B</b> (informative)	<b>Example of a system for measuring the amount of carbon dioxide evolved</b> ..	<b>11</b>
<b>Annex C</b> (informative)	<b>Examples of methods for the determination of evolved carbon dioxide</b> .....	<b>12</b>
<b>Annex D</b> (informative)	<b>Theoretical oxygen demand (ThOD)</b> .....	<b>14</b>
<b>Annex E</b> (informative)	<b>Example of a determination of the amount and the molecular mass of water-insoluble polymer remaining at the end of a biodegradation test</b> .....	<b>15</b>
<b>Bibliography</b>	.....	<b>16</b>

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**ISO 17556:2003(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 17556 was prepared by Technical Committee ISO/TC 61, *Plastics*, Subcommittee SC 5, *Physical-chemical properties*.

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## Introduction

With the increasing use of plastics, their recycling and disposal have become a major issue. As a first priority, recycling needs to be promoted. Complete recycling of plastics, however, is difficult. For example, plastic litter, which comes mainly from consumers, is difficult to recycle completely. Other examples of plastic materials which are difficult to recycle are fishing tackle, agricultural mulch films and water-soluble polymers. These materials tend to “leak” from closed waste-management infrastructures into the natural environment. Biodegradable plastics are now emerging as one of the options available to solve such environmental issues. Several International Standards specifying methods for determining the ultimate aerobic/anaerobic biodegradability of plastic materials in aqueous/compost conditions have been published. In view of the use and disposal of biodegradable plastics, it is therefore very important to establish a method of determining the ultimate aerobic biodegradability of such materials in soil.

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# Plastics — Determination of the ultimate aerobic biodegradability in soil by measuring the oxygen demand in a respirometer or the amount of carbon dioxide evolved

**WARNING** — Appropriate precautions should be taken when handling soil because it may contain potentially pathogenic organisms. Toxic test compounds and those whose properties are unknown should be handled with care.

## 1 Scope

This International Standard specifies a method for determining the ultimate aerobic biodegradability of plastic materials in soil by measuring the oxygen demand in a closed respirometer or the amount of carbon dioxide evolved. The method is designed to yield an optimum degree of biodegradation by adjusting the humidity of the test soil.

If a non-adapted soil is used as an inoculum, the test simulates the biodegradation processes which take place in a natural soil environment; if a pre-exposed soil is used, the method can be used to investigate the potential biodegradability of a test material.

This method applies to the following materials:

- Natural and/or synthetic polymers, copolymers or mixtures of these.
- Plastic materials which contain additives such as plasticizers or colorants.
- Water-soluble polymers.
- Materials which, under the test conditions, do not inhibit the activity of the microorganisms present in the soil. Inhibitory effects can be measured using an inhibition control or by another suitable method (see e.g. ISO 8192). If the test material inhibits the microorganisms in the soil, a lower test material concentration, another type of soil or a pre-exposed soil can be used.

## 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 10381-6, *Soil quality — Sampling — Part 6: Guidance on the collection, handling and storage of soil for the assessment of aerobic microbial processes in the laboratory*

ISO 10390, *Soil quality — Determination of pH*

ISO 10634, *Water quality — Guidance for the preparation and treatment of poorly water-soluble organic compounds for the subsequent evaluation of their biodegradability in an aqueous medium*

ISO 10694, *Soil quality — Determination of organic and total carbon after dry combustion (elementary analysis)*

ISO 11274, *Soil quality — Determination of the water-retention characteristic — Laboratory methods*