

STN	Plasty Stanovenie aeróbnej biodegradácie neplávajúcich materiálov vystavených morskému sedimentu Metóda analýzou uvoľneného oxidu uhličitého (ISO 22404: 2019)	STN EN ISO 22404 64 8021
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Plastics - Determination of the aerobic biodegradation of non-floating materials exposed to marine sediment - Method by analysis of evolved carbon dioxide (ISO 22404:2019)

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

**Plastics - Determination of the aerobic biodegradation of
non-floating materials exposed to marine sediment -
Method by analysis of evolved carbon dioxide (ISO
22404:2019)**

Plastiques - Détermination de la biodégradation
aérobie des matériaux non flottants exposés aux
sédiments marins - Méthode par analyse du dioxyde de
carbone libéré (ISO 22404:2019)

Kunststoffe - Bestimmung des aeroben Bioabbaus von
nicht-schwimmenden Materialien, die marinem
Sediment ausgesetzt sind - Verfahren mittels Analyse
des freigesetzten Kohlenstoffdioxids (ISO 22404:2019)

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EN ISO 22404:2021 (E)

Contents	Page
European foreword.....	3

European foreword

The text of ISO 22404:2019 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 22404:2021 by Technical Committee CEN/TC 249 "Plastics" the secretariat of which is held by NBN.

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Plastics — Determination of the aerobic biodegradation of non-floating materials exposed to marine sediment — Method by analysis of evolved carbon dioxide

Plastiques — Détermination de la biodégradation aérobie des matériaux non flottants exposés aux sédiments marins — Méthode par analyse du dioxyde de carbone libéré



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Contents		Page
Foreword		iv
Introduction		v
1 Scope		1
2 Normative references		1
3 Terms and definitions		1
4 Principle		2
5 Test environment		2
6 Reagents		2
7 Apparatus		3
8 Procedure		3
8.1 Test material.....		3
8.2 Reference material.....		4
8.3 Preparation of the sediment.....		4
8.4 Test setup.....		4
8.5 Pre-conditioning phase.....		4
8.6 Start of the test.....		5
8.7 Carbon dioxide measurement.....		5
8.8 End of the test.....		6
9 Calculation and expression of results		6
9.1 Calculation.....		6
9.1.1 Amount of CO ₂ produced.....		6
9.1.2 Percentage of biodegradation.....		8
9.2 Expression and interpretation of results.....		8
10 Validity of results		9
11 Test report		9
Bibliography		10

ISO 22404:2019(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.

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

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Introduction

Products made with biodegradable plastics and other biodegradable materials are designed to be recoverable by means of organic recycling in composting plants or in anaerobic digesters. The uncontrolled dispersion of biodegradable plastics in natural environments is not desirable. The biodegradability of products cannot be considered as an excuse to spread wastes that should be recovered and recycled. However, test methods to measure rate and level of biodegradation in natural environments (such as soil or the marine environment) are of interest in order to better characterize the behaviour of plastics in these very particular environments. As a matter of fact, some plastics are used in products that are applied in the sea (for example, fishing gear) and sometimes they can get lost or put willingly in marine environment. The characterization of biodegradable plastic materials can be enlarged by applying specific test methods that enable the quantitative assessment of biodegradation of plastics exposed to marine sediment and seawater. In order to carry out a proper product design, it is important to know whether a plastic material is inherently biodegradable when exposed to marine inocula.

This document provides a test method for calculating and reporting biodegradation level obtained under laboratory conditions using a marine inoculum. The marine inoculum is sediment sampled at the tidal zone. The plastic material is exposed to this environmental matrix and biodegradation is followed by measuring the evolved CO₂.

Plastics — Determination of the aerobic biodegradation of non-floating materials exposed to marine sediment — Method by analysis of evolved carbon dioxide

1 Scope

This document specifies a laboratory test method to determine the degree and rate of aerobic biodegradation level of plastic materials. This test method can also be applied to other materials.

Biodegradation is determined by measuring the CO₂ evolved by the plastic material when exposed to marine sediments sampled from a sandy tidal zone and kept wet with salt-water under laboratory conditions.

This test method is a simulation under laboratory conditions of the habitat found in sandy tidal zone that, in marine science, is called eulittoral zone.

The conditions described in this document might not always correspond to the optimum conditions for the maximum degree of biodegradation to occur.

Deviations from the test conditions described in this document are justified in the test report.

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 10210, *Plastics — Methods for the preparation of samples for biodegradation testing of plastic materials*

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