
Polimerni materiali - Ugotavljanje stopnje razpada polimernih materialov v morskih habitatih v realnih terenskih pogojih (ISO 22766:2020)

Plastics - Determination of the degree of disintegration of plastic materials in marine habitats under real field conditions (ISO 22766:2020)

Kunststoffe - Bestimmung des Zersetzungsgrades von Kunststoff-Materialien in marinen Lebensräumen unter realen Feldbedingungen (ISO 22766:2020)

Plastiques - Détermination du degré de désintégration des matériaux plastiques dans les habitats marins en conditions réelles (ISO 22766:2020)

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This European Standard was approved by CEN on 8 November 2021.

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European foreword

The text of ISO 22766:2020 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 22766:2021 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of an identical text or by endorsement, at the latest by May 2022, and conflicting national standards shall be withdrawn at the latest by May 2022.

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**Plastics — Determination of the
degree of disintegration of plastic
materials in marine habitats under
real field conditions**

*Plastiques — Détermination du degré de désintégration des
matériaux plastiques dans les habitats marins en conditions réelles*

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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*.

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

Even though plastics that are biodegradable according to established land-based treatment standards are not and never were intended as a solution to marine littering, the United Nations Environment Programme (UNEP) recognizes that "biodegradability in seawater" can be part of the solution (EuBP, 2016; UNEP, 2016). Hence, plastic materials that are biodegradable might be used as a potential alternative option in order to reduce the residence time of plastic waste in case of dispersion. Thus, the degree and rate of disintegration is of interest in order to determine the durability of products when exposed to the marine environment and the physical disappearance of waste in case of dispersal.

This document describes a disintegration test performed in two different marine habitats under real field conditions. The relative durability of plastic materials of the same size and form may vary depending on the location of the exposure, seasonal variations, the climatic conditions, water movement, tides, availability of nutrients, and diversity and density of the competent microbial community. Hence, it is recommended to perform the disintegration test in regions where the plastic material is likely to end up in the coastal environment for accidental or deliberate reasons.

This document describes a disintegration test and not a biodegradation test, as the conversion of the plastic materials is not determined by means of measuring the O₂-consumption or the CO₂-evolution.

The assessment of the intrinsic aerobic biodegradability of plastic materials exposed to marine environment is covered by ISO 22403.

The determination of the degradation and durability of plastic materials floating on the surface of seawater or partially or completely immersed in coastal shallow seawater under real field conditions is covered by ISO 15314.

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