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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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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Foreword

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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 CO_2.