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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 33797-2017

**Plastics -- Determination of the ultimate anaerobic
biodegradation under high-solids anaerobic-digestion
conditions -- Method by analysis of released biogas**

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 15985..2014 "plastic in high solid compost conditions under the final anaerobic biodegradation energy

Determination of the use of force for the determination of the release of biogas. "(English version).

Introduction

With the enhancement of environmental protection, we need to develop new plastics with biodegradability. These plastics and their derivatives are used as

Raw materials or added raw materials, can be aerobic digestion or anaerobic digestion to achieve bio-recycling. To ensure that the plastic is suitable for the biological cycle, they are

The biodegradability needs to be determined by a standard test method.

There are currently standard methods for the determination of aerobic biodegradability of materials under high solids conditions (GB/T 19277.1-2011 and

GB/T 19277.2-2013), but the literature shows that different environments (such as oxygen or anaerobic conditions) under the biodegradable plastic biodegradable

The rate will be very different. So in order to more fully understand a plastic in different environmental conditions under the biodegradable characteristics, the need for a different test

Test method.

The current method of determining the anaerobic biodegradability is ISO 11734, but this method is only for soluble low-density test materials

The biodegradability of materials (such as detergents) under aqueous test conditions is not

applicable to plastics. This standard specifies the determination of plastic in high solids

Content of anaerobic digestion under the conditions of the final degree of biodegradation, which represents the city of organic solid waste anaerobic digestion.

The plastic is finally anaerobic under high solids composting conditions

The determination of biodegradability was determined by analysis

The method of releasing biogas

1 Scope

This standard specifies a method for the evaluation of biogas release under high anaerobic digestion conditions.

Material decomposition method. The method simulates typical anaerobic digestion conditions with urban organic solid waste. The test material was exposed to the test

Indoor anaerobic digested household waste inoculum. Anaerobic decomposition occurs at high solids levels (total dry solids content greater than

20%) environment, and placed under unmixed conditions. The test method was used to determine the carbon content of the test material and its conversion to dioxins

The percentage of carbon and methane.

The conditions described in this standard do not always correspond to the best conditions for maximum biodegradation.

2 normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article

Pieces. For undated references, the latest edition (including all modifications) applies to this document.

ISO 8245 Guidelines for the Determination of Total Organic Carbon (TOC) and Dissolved Organic Carbon (DOC) [Waterquality-Guidelines

for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)]

3 terms and definitions

The following terms and definitions apply to this document.

3.1

Final anaerobic biodegradation

Organic compounds are broken down by microorganisms into methane, carbon dioxide, water and mineralized inorganic salts and other elements and new biomass.

3.2

Total dry total dry solids

The amount of solid obtained by drying the known volume of the test material or inoculum at a temperature of 105 ° C to constant weight.

3.3

Volatile solid volatile solids

The total dry solids of the known volume of the test material or inoculum are subtracted from the amount of residual solids obtained after incineration at about 550 ° C

Get the difference.

Note. Volatile solids are used to characterize the organic material content of the material.

3.4

Lag phase

From the beginning of the experiment until the microorganism adapts (or chooses) the decomposition product, and the biodegradability of the test material has increased to the maximum

The number of days required for a biodegradation rate of 10%.