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

GB/T 32106-2015

**Plastics -- Determination of the ultimate anaerobic
biodegradation of plastic materials in an aqueous system --
Method by measurement of biogas production**

塑料 在水性培养液中最终厌氧生物分解能力的测定 通过测量生物气体产物的方法

(English Translation)

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Foreword

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

This standard is identical with ISO 14853. Determination of "Plastic aqueous medium plastic ultimate anaerobic biodegradation rates measured using 2005 Method "given biological gases.

To facilitate the use of this standard made the following editorial changes.

- a) Appendix A, Appendix C, Appendix H complements the figure number and title;
- b) Appendix D to increase the "Table D.1" and the words "table D.2" table number;
- c) formula (G.6) in "* 100" to "x 100".

Please note that some of the content of this document may involve patents. Release mechanism of the present document does not assume responsibility for the identification of these patents.

This standard by the national bio-based materials and their degradation products Standardization Technical Committee (SAC/TC380) centralized.

This standard was drafted. Beijing Technology and Business University, Fujian Institute of product quality inspection, Han Feng Suzhou New Materials Co., country Plastic Products Quality Supervision and Inspection Center (Beijing), Tianjin Institute of Industrial Biotechnology, Chinese Academy of Technology, Zhejiang Wafa Ecosystem Science & Technology Co., the company.

Introduction

With increasing usage of plastic, its recovery and disposal has become a hot spot. Recycling is the preferred approach, but to be completely recycled plastic it is difficult. Some plastics such as fishing gear, agricultural films and water-soluble polymers are more difficult to recycle, often from a closed garbage Processing circulatory system leak into the

environment, the use of biodegradable plastic is one of the effective ways to solve these environmental problems. Tired of being sent Oxygen digestion processing equipment plastic products or packaging materials should be as biodegradable, so the determination of these biological materials in an anaerobic environment Decomposition becomes very important.

Plastic in an aqueous medium in the final Anaerobic Determination of decomposition by measuring biological gas the method of product Warning. waste water, sludge, soil and compost may contain potentially pathogenic bacteria, therefore, should be handled with appropriate precautions.

Be extremely careful when dealing with the nature of unknown toxicity test compound or compounds.

1 Scope

This standard specifies a test method for determination of the final plastic anaerobic biodegradability in an aqueous medium.

The standard test conditions employed do not necessarily produce the best conditions for the maximum rate of biodegradation. Although industrial sludge in anaerobic digestion equipment You can have a longer retention time, but usually to 25d ~ 30d, the provisions of this standard test cycle can to 60d.

This method is suitable for the following materials.

Natural and/or synthetic polymers, copolymers, and mixtures thereof;

Plastics such as plasticizers, pigments and the like containing additive;

Water-soluble polymer;

Under the experimental conditions, inoculum material does not inhibit microbial activity. Inhibition can be controlled or other appropriate means suppression Determined (see ISO 13641). If the inoculum of the test material inhibited, may be used in other inoculum lower test concentration or inoculum of pre-exposure means.

2 Normative references

The following documents for the application of this document is essential. For dated references, only the dated version suitable for use herein Member. For undated references, the latest edition (including any amendments) applies to this document.

ISO 8245 Quality total organic carbon (TOC) and dissolved organic carbon (DOC) Guidelines for the determination [Waterquality-Guidelines
for the determination of total organic carbon (TOC) and dissolved organic carbon (DOC)]
Inhibition assay ISO 13641 (all parts) Quality anaerobic gas production

(Water quality - Determination of inhibition of gas production of anaerobic bacteria)

3 Terms and Definitions

The following terms and definitions apply to this document.

Ultimate anaerobic biodegradation Under anaerobic conditions, organic compounds are broken down by microorganisms to carbon dioxide (CO₂), methane (CH₄), water (H₂O) and the elements contained Mineralized salts and new biomass.

Primary anaerobic biodegradability primary anaerobic biodegradation Structural change (transformation) leads to the loss of specific performance compound occurs under the action of microorganisms.