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

GB/T 39715.4-2021

**Plastics - Biobased content - Part 4: Determination of biobased
mass content**

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Foreword

GB/T 39715 "Plastic Bio-based Content" is divided into 5 parts.

---Part 1.General principles;

---Part 2.Determination of bio-based carbon content;

---Part 3.Determination of bio-based synthetic polymer content;

---Part 4.Determination of the content of bio-based substances;

---Part 5.Reports on bio-based carbon content, bio-based synthetic polymer content and bio-based material content.

This part is Part 4 of GB/T 39715.

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

The translation method used in this part is equivalent to the adoption of ISO 16620-4.2016

``Plastic Bio-based Content Part 4.Bio-based Substance Content

Determination".

This part was proposed by the China Petroleum and Chemical Industry Federation.

This part is under the jurisdiction of the National Plastics Standardization Technical Committee (SAC/TC15).

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Introduction

Increasing the use of biomass resources in the manufacture of plastic products can effectively reduce global warming and the consumption of fossil resources.

Current plastic products consist of bio-based synthetic polymers, fossil-based synthetic polymers, natural polymers and additives (may include biological substrates)

?) Composition.

Bio-based plastics refer to plastics that contain all or part of materials of biological origin.

In this series of standards, the bio-based content of bio-based plastics only refers to the content of bio-based carbon, the content of bio-based synthetic polymers, or the content of bio-based synthetic polymers.

The content of bio-based substances.

This document is consistent with EN16785-1.2015.

Plastic bio-based content

Part 4.Determination of the content of bio-based substances

1 Scope

This part of GB/T 39715 specifies the determination of the content of bio-based substances in plastic products based on radiocarbon analysis and elemental analysis.

method.

This section applies to plastic products, plastic materials, polymer resins, monomers or additives made from bio-based and/or fossil-based ingredients.

It is also suitable for plastic products containing carbon and provides its elemental composition and bio-based substance content.

2 Normative references

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

Pieces. For undated reference documents, the latest version (including all amendments) is applicable to this document.

ISO 16620-2.2015 Biobased content of plastics Part 2.Determination of biobased carbon

content (Plastics-Biobasedcontent-Part 2.Determinationofbiobasedcarboncontent)

3.1 Terms and definitions

The terms and definitions defined in ISO 16620-1 apply to this document.

ISO and IEC maintain a terminology database for documentation at the following address.

3.2 Symbols

^{14}C . A carbon isotope with an atomic weight of 14.

C. Carbon element.

H. Hydrogen element.

N. Nitrogen element.

O. Oxygen element.

mB. Bio-based substance content, expressed as a percentage of the total mass of the sample.

xB. Bio-based carbon content, expressed as a percentage of the total mass of the sample.

xTC. Total carbon content, expressed as a percentage of the total mass of the sample.

xTH. Total hydrogen content, expressed as a percentage of the total mass of the sample.

xTN. Total nitrogen content, expressed as a percentage of the total mass of the sample.

xTO. Total oxygen content, expressed as a percentage of the total mass of the sample.

W. The mass of the sample, in grams.