

CCS G 31



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

GB/T 39715.2-2021

**Plastics - Biobased content - Part 2: Determination of biobased
carbon content**

Issued on: August 20, 2021

Implemented on: March 1, 2022

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

Table of Contents

Foreword

Introduction

1 Scope

2 Normative references

3 Terms, definitions, symbols and abbreviations

3.1 Terms and definitions

Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for Standardization Work Part 1. Structure and Drafting Rules of Standardization Documents"

Drafting.

This document is Part 2 of GB/T 39715 "Plastic Bio-based Content", GB/T 39715 has released the following 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.

The translation method used in this document is equivalent to ISO 16620-2:2019 "Plastic Bio-based Content Part 2. Measurement of Bio-based Carbon Content"

Certainly".

The Chinese documents that have consistent correspondence with the normatively cited international documents in this document are as follows.

---GB/T 39715.1-2021 Plastic Bio-based Content Part 1. General Principles (ISO 16620-1:2015, IDT)

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

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

Drafting organizations of this document. Beijing Technology and Business University, Kingfa Technology Co., Ltd., Jieshou Tianlu Packaging Materials Co., Ltd., Zhonglan Chenguang

Chemical Research and Design Institute Co., Ltd., Jilin Province Product Quality Supervision and Inspection Institute, Qingdao Zhongxin Huamei Plastic Co., Ltd., Guangzhou Quality Supervision and Inspection

Research Institute.

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 bio-based carbon content, bio-based synthetic polymer content, or bio-based synthetic polymer content.

Base substance content.

In view of the length of the relevant content corresponding to the bio-based content, the general principles, bio-based carbon content, bio-based synthetic polymer content and

The content of bio-based substances is divided into four corresponding parts, and each part is coordinated and supplemented with each other.

Plastic bio-based content

Part 2.Determination of Bio-based Carbon Content

Warning---The use of this document may involve hazardous materials, operations and equipment. This document is not intended to address all issues related to use

There are security issues. The user of this document is responsible for establishing appropriate safety and health regulations and determining relevant restrictions before use.

1 Scope

This document specifies the calculation method for determining the bio-based carbon content in monomers, polymers, and plastic materials and products. The method is based on 14C

Determination of content.

This document applies to plastic products, plastic materials, polymer resins, monomers or additives containing bio-based or fossil-based ingredients.

Knowing the bio-based content of plastic products helps to assess their environmental impact.

2 Normative references

The contents of the following documents constitute the indispensable clauses of this document through normative references in the text. Among them, dated quotations

Only the version corresponding to that date is applicable to this document; for undated reference documents, the latest version (including all amendments) is applicable to

This document.

ISO 16620-1 Plastic Biobased Content Part 1.General Principles
(Plastics-Biobasedcontent-Part 1.Gen-
eralprinciples)

3.1 Terms and definitions

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

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

3.1.1

Percentmoderncarbon

pMC

The standard and standardized value of the number of ^{14}C isotope in the sample is relative to the standardized and standard oxalic acid standard reference material NIST

SRM4990b, NISTSRM4990c or sucrose (NISTSRM8542) 1) ^{14}C isotope calculated.

Note. The reference value of 100% bio-based carbon is shown in Table 2.

3.1.2

Radiocarbon

The radioactive/isotope ^{14}C of carbon has 8 neutrons, 6 protons and 6 electrons.

1) SRM4990c is a brand name provided by the National Institute of Standards and Technology. This information is provided for the convenience of users of this International Standard

The supply does not mean ISO 's approval of the described products. If there is evidence that they can produce the same results, you can use equivalent alternative products.