



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

GB/T 15596-2021

**Plastics - Determination of changes in colour and variations in
properties after exposure to glass-filtered solar radiation,
natural weathering or laboratory radiation sources**

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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 replaces GB/T 15596-2009 "Plastic changes in color and performance after exposure to sunlight, natural climate or laboratory light sources under glass

Compared with GB/T 15596-2009, except for structural adjustments and editorial changes, the main technical changes are as follows.

---The name of the standard was changed to "The color and performance of plastics after glass filtration, solar radiation, natural climate or laboratory radiation source exposure Determination of change";

---Modified the content of the chapter "Normative Reference Documents", deleted and adjusted some of the reference documents (see Chapter 2, Chapter 2,.2009 Edition) Chapter 2);

--- Deleted the definition of "shading area" in the chapter "Terms and Definitions" (see 3.3 in the.2009 edition);

---Modified the content of the chapter "Determination of Color or Other Appearance Changes", and added a general description (see Chapter 4,.2009 edition of the Chapter 4);

---Modified the content of the chapter "Determination of Mechanics or Other Performance Changes" (see Chapter 5, Chapter 5 of the.2009 edition);

---Revised the reference standard in 6.1.1 on the measurement of color change instruments (see 6.1.1, 6.1.1 of the.2009 edition).

The translation method used in this document is equivalent to ISO 4582.2017 ``Solar radiation, natural climate or laboratory radiation after plastics are filtered by glass.

Determination of changes in color and performance after exposure to radiation sources".

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

---GB/T 250-2008 Textile color fastness test to evaluate the gray sample card for discoloration (ISO 105-A02.1993, IDT);

---GB/T 251-2008 Textile color fastness test evaluation staining gray sample card (ISO 105-A03.1993, IDT);

---GB/T 2918-2018 Standard environment for condition adjustment and testing of plastic specimens (ISO 291.2008, MOD);

---GB/T 6151-2016 General Rules for Textile Color Fastness Test (ISO 105-A01.2010, MOD).

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).

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Introduction

A variety of different exposure methods can provide information on the impact of external environmental conditions (such as simulated solar radiation, heat, water, etc.) on plastics [Reference

ISO 877 (all parts) and ISO 4892 (all parts)]. Each exposure test has its specific scope of application. When the measuring material is

When a specific performance changes under different exposures, in order to ensure the validity of the test results, the same evaluation method should be used after all exposures.

The results of the plastic exposure test largely depend on the type of exposure test, the type of plastic being tested, and the performance being evaluated. Even though

Under the same exposure test conditions, the test results of a certain property of the material may be inconsistent with the test results of other properties. This document is not for

It establishes a fixed method to guide the exposure test, but to provide a set of characteristics used to express the results of the material performance change after the exposure test.

Set procedures. It is up to the user to determine which exposure test conditions are most suitable for the specific material and the environment in which it is used.

Taking into account the expected application of the material, a test method for determining the appearance and performance changes of the exposed material should be selected.

Designed exposure test

It should be judged by combining these changes in material properties. This document recommends some typical properties used to determine changes in exposed plastics.

Note. Due to the large differences in the spectral distribution of the radiation sources used, the same plastic is exposed to different types of equipment described in ISO 4892 (all parts)

There may be large differences between the test results obtained. Therefore, only plastics can be exposed to similar test equipment and the same test conditions.

Compare its test results. In order to achieve the best comparison effect, plastics should be exposed simultaneously in the same test equipment.

Solar radiation and natural climate after plastic is filtered by glass

Or changes in color and performance after exposure to laboratory radiation sources

Determination of

1 Scope

This document specifies the color of plastic after exposure to solar radiation, natural climate or laboratory radiation sources that simulate solar radiation after glass filtration

And other appearance performance, mechanics or other performance changes measurement methods. The method of analyzing the data depends on the performance evaluation test of the exposed material

Whether the test is destructive or non-destructive. The exposure test is carried out under the specified conditions of specific exposure standards.

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 105-A01 Textiles-Tests for Colour Fastness Part A01.General Rules for Testing
(Textiles-Testsforcolourfast-
ness-PartA01.Generalprinciplesoftesting)

ISO 105-A02 Textiles Color Fastness Test Part A02.Gray Scale for Assessing Discoloration
(Textiles-Testsfor
colourfastness-PartA02.Greyscaleforassessingchangeincolour)

ISO 105-A03 Textiles Color Fastness Test Part A03.Gray Scale for Evaluation of Staining
(Textiles-Testsfor