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

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Plastics - Artificial weathering including acidic deposition

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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 for Standardization Documents" drafting.

This document is equivalent to ISO 29664.2010 "Artificial Weathering of Plastics Containing Acidic Deposition".

A chapter "Terms and Definitions" has been added to this document.

Please note that some contents of this document may refer to patents. The issuing agency of this document assumes no responsibility for identifying patents.

Introduction

This document provides a method for evaluating the performance of plastics that can be adversely affected in heavily polluted outdoor applications.

Acidic deposits have a significant effect on the photoaging properties of many plastics. In some cases, the cause of this effect is acidic deposits

Attack on stabilizers or fillers such as calcium carbonate used in industrial polymers.

Although acidic deposits also originate from noxious gases, their

The damage mechanism is different from harmful gas erosion.

Due to the constant change of industrial air pollution and the randomness of wind and cloud diffusion, acid rain is sporadic. different years

The outdoor climate conditions vary greatly in different parts of China, especially acid rain. Therefore, only one season of experiments cannot obtain reliable outdoor exposure results.

fruit. Laboratory tests can avoid these gases in the atmosphere by controlling all artificial

weathering parameters including acid deposition.

fluctuations in climate parameters. The existing artificial aging test methods for plastics generally do not consider the influence of acid rain in natural conditions.

Artificial Weathering of Plastics Containing Acidic Deposition

1 Scope

This document describes artificial weathering test methods for plastics used in heavily polluted outdoor environments.

This document is not intended for lifetime prediction of plastics used in heavily polluted outdoor environments.

This document describes two different exposure methods and the choice of test method depends on the type of plastic product being evaluated. where method A is

Spraying with strong acidic solution (pH 1.5) for a short period of time is suitable for the main damage form of surface degradation. Method B is a longer time and weaker acid solution

Liquid spray (pH 3.5), suitable for situations where the acid can penetrate deeply into the product, such as geotextiles and related products.

This document does not address the effects of specific chemicals such as pesticides.

2 Normative references

The contents of the following documents constitute the essential provisions of this document through normative references in the text. Among them, dated references

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

this document.

Note. GB/T 2918-2018 Standard environment for conditioning and testing of plastic specimens (ISO 291.2008, MOD)

ISO 4582 Determination of color and property changes of plastics after exposure to solar radiation, natural climate or laboratory radiation sources after glass filtration

Note. GB/T 15596-2021 Determination of color and property changes of plastics after glass filtration by solar radiation, natural climate or laboratory radiation sources

(ISO 4582.2017, IDT)

ISO 4892-1 Plastics Laboratory Light Exposure Test Methods Part 1.General

(Plastics-Methods of exposure)

Note. GB/T 16422.1-2019 Plastic Laboratory Light Exposure Test Methods Part 1. General (ISO 4892-1:2016, IDT)

ISO 4892-2 Laboratory light source exposure test method for plastics Part 2. Xenon arc lamp (Plastics-Methods of)

Note. GB/T 16422.2-2014 Plastic Laboratory Light Source Exposure Test Method Part 2. Xenon Arc Lamp (ISO 4892-2:2006, IDT)

ISO 4892-3 Laboratory light source exposure test methods for plastics Part 3. Fluorescent ultraviolet lamps (Plastics-Methods of ex-

Note. GB/T 16422.3-2014 Plastic laboratory light source exposure test methods Part 3. Fluorescent ultraviolet lamps (ISO 4892-3:2006, IDT)

3 Terms and Definitions

This document does not have terms and definitions that need to be defined.

4 principles

Evaluation of UV radiation, temperature, humidity, wetting and acids in weathering equipment according to ISO 4892-1, ISO 4892-2 and ISO 4892-3