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

GB/T 21782.7-2026

Replacing GB/T 21782.7-2008

**Coating powders - Part 7: Determination of loss of mass on
stoving**

粉末涂料 第7部分：烘烤时质量损失的测定

(English Translation)

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Foreword

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

Drafting.

This document is Part 7 of GB/T 21782 "Powder Coatings". GB/T 21782 has already published the following parts.

- Part 1: Determination of particle size distribution by sieving method;
- Part 2: Determination of density using a gas comparative hydrometer (arbitration method);
- Part 3: Determination of density using the liquid displacement specific gravity bottle method;
- Part 5: Determination of the flowability of powder-air mixtures;
- Part 7: Determination of mass loss during baking;
- Part 8: Assessment of the storage stability of thermosetting powders;
- Part 9: Sampling;
- Part 10: Determination of Deposition Efficiency;
- Part 11: Determination of the Flowability of Inclined Plates;
- Part 12: Determination of compatibility;
- Part 13: Particle Size Analysis by Laser Diffraction;
- Part 14: Terminology.

This document supersedes GB/T 21782.7-2008 "Powder Coatings - Part 7: Determination of Mass Loss During Baking".

Compared with GB/T 21782.7-2008, apart from structural adjustments and editorial changes, the main technical changes are as follows.

- a) The scope has been changed (see Chapter 1, Chapter 1 of the 2008 edition);
- b) Necessary supplementary information has been removed (see Chapter 3 of the 2008 edition);
- c) Added terms and definitions (see Chapter 3);
- d) The principle has been added (see Chapter 4);
- e) The determination was changed (see 7.3, 6.2 of the 2008 edition);
- f) The representation of the results has been changed (see Chapter 8, Chapter 7 of the 2008 edition).

This document is equivalent to ISO 8130-7:2019 "Powder coatings - Part 7: Determination of mass loss during baking".

Please note that some content in this document may involve patents. The issuing organization of this document assumes no responsibility for identifying patents.

This document is under the jurisdiction of the National Technical Committee on Standardization of Coatings and Pigments (SAC/TC5).

Introduction

The GB/T 21782 series of standards covers the testing and evaluation of key indicators of powder coatings, such as particle size distribution, density determination, and storage stability.

This series of standards defines a set of tests and applications for powder coatings. Each document in this series describes a specific set of tests and applications. The GB/T 21782 series of standards aims to provide a standard for powder coatings.

The standard provides a unified and reliable set of testing procedures for producers, users, and testing institutions, and supports product quality control, safe production, and national security.

It provides scientific support for international trade and is planned to consist of 13 parts.

---Part 1: Determination of Particle Size Distribution by Sieving Method. The purpose is to standardize the determination of particle size distribution in powder coatings using manual and mechanical sieving methods.

Two methods of applying cloth.

---Part 2: Determination of Density Using a Gas Comparative Hydrometer (Arbitration Method). The purpose is to standardize the determination of density based on the principle of gas displacement using gas...

A comparative method for determining the density of powder coatings using a specific gravity meter.

---Part 3: Determination of Density by Liquid Displacement Specific Gravity Bottle Method. The purpose is to standardize the method of determining density based on Archimedes' principle using liquid displacement specific gravity bottles.

---Part 4: Calculation of the Lower Explosive Limit. The purpose is to standardize the calculation of the lower explosive limit of powder coatings based on the total calorific value or the calorific value of the combustible components.

The method of lower limit.

---Part 5: Determination of the flowability of powder-air mixtures. The aim is to standardize the method for measuring fluidization factor and powder flow rate.

The method characterizes the flow properties of powder during the conveying and spraying process.

---Part 7: Determination of mass loss during baking. The purpose is to standardize powder coating processes using electrostatic spraying, flocking spraying, or fluidized bed coating.

Method for determining mass loss during final coating baking.

---Part 8: Assessment of the Storage Stability of Thermosetting Powders. The aim is to standardize the assessment of the storage stability of thermosetting powder coatings under specific storage conditions.

In a storage environment, stored at a specified temperature for a specified period of time, its free flow properties, chemical reactivity, and coating formation are observed.

Layer changes are used to assess storage stability.

---Part 9: Sampling. The purpose is to standardize the sampling methods for powder coatings in delivery batches and to quantitatively reduce the sample size to test samples.

Methods of producing goods.

---Part 10: Determination of Deposition Efficiency. The aim is to standardize the spraying process for testing deposition on samples under known spray gun and environmental conditions.

Methods for determining the percentage of powder by mass.

---Part 11: Determination of the flowability of inclined plates. The purpose is to standardize the melting of thermosetting powder coatings at a fixed angle along an inclined plate.

Methods for detecting the flow characteristics during melting and flow.

---Part 12: Compatibility Testing. The purpose is to standardize the surface properties of the final coating resulting from the mixing of two different powder coatings.

Methods for determining degradation.

---Part 13: Particle Size Analysis by Laser Diffraction. The purpose is to standardize the determination of the equivalent spherical particle size of powder coatings using laser diffraction.

Distribution methods.

Provide a unified terminology standard.

Powder Coating

Part 7: Determination of mass loss during baking

1 Scope

This document describes a method for determining the mass loss during baking of powder coatings applied by electrostatic spraying, flocking spraying, or fluidized bed coating.

This document describes a simple and practical test method for powders that experience a mass loss of approximately 2% (mass fraction) during baking (heating).

For uncoated surfaces, this method can provide sufficiently accurate results. However, when the mass loss exceeds 2% (mass fraction), the precision decreases with increasing mass loss.

Increase and decrease.

This method determines the content of all volatiles, including moisture.

The thermogravimetric test described in the ISO 11358 series of documents can be used as a comparison method.

2 Normative references

The contents of the following documents, through normative references within the text, constitute essential provisions of this document. Dated citations are not included.

For references to documents, only the version corresponding to that date applies to this document; for undated references, the latest version (including all amendments) applies.

This document.

ISO 8130-14 Coatings - Part 14: Vocabulary Note. GB/T 21782.14-2010 Powder Coatings - Part 14: Terminology (ISO 8130-14:2004, IDT) ISO 15528 Paints, varnishes and paints and