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# NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA



# GB/T 36085-2018

## Nanotechnologies -- Guidance for developing representative test materials consisting of nano-objects in dry powder form

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## Foreword

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

This standard uses the translation method equivalent to the use of ISO /T S16195.2013 "nanotechnology nano-powder material test reference sample development

guide".

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

--- GB/T 15445.1-2008 Presentation of particle size analysis results Part 1. Graphical representation (ISO 9276-1.1998, IDT);

--- CNAS-GL29.2010 General Principles and Statistical Methods for the Determination of Reference Standards/Standards (ISO Guide 35.2006,

IDT);

--- Contents of CNAS-CL30.2010 Reference Standards/Standards Sample Certificates and Labels (ISO Guide 31.2000, IDT).

This standard was proposed by the Chinese Academy of Sciences.

This standard is under the jurisdiction of the National Nanotechnology Standardization Technical Committee (SAC/TC279).

This standard was drafted by the National Nanoscience Center.

## Introduction

With the continuous emergence of nano-new materials and the continuous expansion of nano-material industrial applications, nano-powder materials (composed of nano-objects

The physicochemical properties, performance and safety tests (hereinafter referred to as "tests") of dry powders play an increasingly important role. However, the current stage

The multi-test method is still in the research and development stage, and it also needs to properly evaluate its reliability. In normal circumstances, it is advisable to use certified reference materials

The effectiveness of the new measurement method is evaluated. If there is no certified reference material, replace it with its reference sample (special value is given but not

Specification procedure setting). However, for emerging fields like nanotechnology, relevant measurement and testing technologies are still under development, even if

Test samples are also scarce. In this case, use a test reference sample (one or more of which has been evaluated for uniformity and stability)

Assessment) will help to improve the reproducibility of a test method between laboratory measurements and the different test methods to test the results in the laboratory

Comparability [9]. This standard specifies the required information collected by the nanopowder material test reference sample and provided in its verification report.

1) Information describing the material production process;

2) Quality management information in the production process;

3) Test the physicochemical property measurement data of the typical characteristics of the reference sample;

4) Data on stability and uniformity of the above parameters.

According to this standard, the test reference sample will reflect the uniformity of the test reference sample, the representativeness of the production process, and the stability of the test sample.

Sex. This will increase the comparability of test reference sample safety and functional characterization results across laboratories. For the measurement method is still in

Some of the properties of R&D, even if the uniformity and stability are not quantitatively evaluated, this conclusion also applies.

Nanotechnology nano powder material test reference sample

Development Guide

## 1 Scope

This standard provides guidelines for the development of test reference samples for nanometer powder materials. It aims to promote the development of test methods and improve nanotechnology.

Using comparability of domain data. This standard gives the physicochemical properties that the test reference sample should measure and report (especially the size and shape,

Specific surface area, crystal structure and main chemical composition).

This standard applies to the development of nano-powder material test reference sample.

## 2 Normative references

The following documents are indispensable for the application of this document. For dated references, only dated versions apply to this article

Pieces. For undated references, the latest version (including all amendments) applies to this document.

GB/T 30544.1-2014 Nanotechnology Terms Part 1. Key Terms (ISO /T S80004-1.2010, IDT)

Presentation of the results of ISO 9276-1 particle size analysis Part 1. Representation of results of particle size

analysis-Part 1.Graphicalrepresentation)

Contents of ISO Guide 31 Reference Standards/Standard Sample Certificates and Labels (Referencematerials-Contentsofcertifi-

Cates,otherdocumentationandlabels)

General Principles and Statistical Methods for ISO Guide 35 Reference Standards/Standards (Referencematerials-General

Andstatisticalprinciplesforcertification)

## 3 Terms and definitions

The terms and definitions defined in GB/T 30544.1-2014 and the following terms apply to this document.

3.1

Test reference sample representativetestmaterial; RTM

One or more materials that are sufficiently uniform and stable in specific properties, suitable for the development of target quantity measurements and test methods; and others

By nature, this target value has not been evaluated for uniformity and stability.

Note 1. The test reference sample may be a standard substance of other characteristic values (the characteristic value is uniform and stability test passed) [1], and may also be a target value.

Candidates for standard substances.

Note 2. For test methods that do not yet have a reference material, testing reference samples is a useful tool for developing test methods.

3.2

Primary particle primary particle

Primary particles

It is not a particle formed by the aggregation of smaller particles.

3.3

Stability stability

Under the specified storage conditions, the ability of the reference sample to maintain its characteristic value over a specified period of time is tested.

[Modification of ISO Guide 30.1992]