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

GB/T 44748.1-2024

**Test sieving - Part 1: Methods using test sieves of woven wire
cloth and perforated metal plate**

筛分试验 第1部分：使用金属丝编织网和金属穿孔板试验筛的方法
(English Translation)

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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 Part 1 of GB/T 44748 Screening Test. GB/T 44748 has been published in the following parts.

--- Part 1: Methods for testing sieves using woven wire mesh and perforated metal sheet.

This document is modified from ISO 2591-1:1988 "Sieving tests - Part 1: Test sieves using woven wire mesh and perforated metal sheet" Methods".

This document has the following structural adjustments compared to ISO 2591-1:1988.

--- Adjust "Screening Principles" in the "Introduction" of ISO 2591-1:1988 to Chapter 4 "Screening Principles", and the subsequent chapters and clauses will be numbered accordingly;

--- Adjust the description of Table 1 in 8.1.6 of ISO 2591-1:1988 to footnote b of Table 1, and the subsequent footnote numbers shall be postponed;

--- Added numbers 9.1.1.1 to 9.1.1.3 in 9.1.1;

---Added references.

The technical differences between this document and ISO 2591-1:1988 and their reasons are as follows.

--- ISO 2395 (see Chapter 3) has been replaced by the normative reference GB/T 5329 to adapt to my country's technical conditions;

- Replaced ISO 3310-1 (see 7.2 and 8.2.5.1) with the normative reference GB/T 6003.1 to adapt to my country's technical conditions;
- ISO 3310-2 (see 7.2) is replaced by the normative reference GB/T 6003.2 to adapt to my country's technical conditions;
- Replaced ISO 3310-3 (see 8.2.5.1) with the normative reference GB/T 6003.3 to adapt to my country's technical conditions;
- Change the note in 7.4.2.2 of ISO 2591-1:1988 to the main text (see 8.4.2.2) to facilitate operation;
- Change the note of Figure 1 in ISO 2591-1:1988 to the main text (see 9.1.1) to facilitate operation.

0.1 Overview

Sieving tests are widely used in industry to detect different particle sizes of materials or for other purposes.

In some fields, different industries have different screening test methods, and corresponding national standards are formed to apply to specific scopes.

GB/T 6003 (all parts) specifies the basic size of the test sieve holes, and GB/T 6003 (all parts) specifies the technical requirements for test sieves.

The sieving step depends on the main size range of the particles in the sample. For some difficult-to-screen materials (see Chapter 5), special sieving procedures may need to be developed.

method.

Screening tests are generally used for.

- a) as part of a research project when it involves investigating the particle size of materials;
- b) as part of the production control process when the particle size distribution of the material is very important;
- c) When graded standards are provided, they can serve as the basis for the contract.

The principles of the screening process in each case are similar, but the actual details may vary greatly depending on the purpose of the screening results.

For example, the screening process for research purposes is based on the principle of ensuring the reproducibility of results within the laboratory;

The screening process specified in the regulations is based on the principle of achieving maximum reproducibility between different laboratories at a reasonable test cost.

The precision requirements for quality control are relatively low, with the main factors being cost reduction, maximum mechanization and rapid results.

The reproducibility of the process between different laboratories is not very good, but it may still be possible to achieve it for a specific operator and equipment by simplifying the process.

For the purpose of quality control.

GB/T 44748 "Screening test" is intended to provide guidance to all those responsible for deciding on the screening test process, including those concerned with specific materials.

The system is intended to be composed of two parts.

--- Part 1: Methods for testing sieves using woven wire mesh and perforated metal sheet;

--- Part 2: Method for testing sieves using electroformed sheet metal.

The two parts of GB/T 44748 describe the test methods for screening using different types of test sieves.

0.2 Correlation of results from different particle size analysis methods

It is often advantageous to use a combination of different methods to determine the particle size distribution, such as sieving, sedimentation, elutriation or microscopy. Ideally, a single it is often not possible to cover the range of a single distribution with one method.

There are two methods that can be used to estimate one or more particle size fractions, which are not very accurate but are simple and easy to use.

Sieving tests - Part 1: Using woven wire mesh and metal perforated plate test sieve method

1 Scope

This document describes the main factors affecting sieving tests and their results, and specifies the requirements for apparatus, sieving methods and presentation of results.

This document applies to sieving test methods using woven wire mesh or perforated metal sheet.

2 Normative references

The contents of the following documents constitute the essential clauses of this document through normative references in this document.

For referenced documents without a date, only the version corresponding to that date applies to this document; for referenced documents without a date, the latest version (including all amendments) applies to this document.

GB/T 5329 Test sieves and sieving test terminology (GB/T 5329-2003, ISO 2395:1990, MOD) GB/T 6003.1 Test sieves - Technical requirements and inspection - Part 1: Wire mesh test sieves (GB/T 6003.1-2022, ISO 3310-1:2016, MOD) GB/T 6003.2 Test sieves - Technical requirements and inspection - Part 2: Metal perforated plate test sieves (GB/T 6003.2-2012, ISO 3310-2:2013, MOD) GB/T 6003.3 Electroformed sheet test sieves (GB/T 6003.3-1999, eqvISO 3310-3:1990)

3 Terms and Definitions

The terms and definitions defined in GB/T 5329 apply to this document.

4 Screening principle

The single test sieve divides the specified material into two parts, one part is blocked by the screen surface, and the other part passes through the screen hole.

When the size of the test sieve is close to the abrasive characteristics of the specific particles can only pass through the aperture at the favorable position, but not at other positions.

Since the sieve size will inevitably change, long-term screening will result in larger sieve holes on the sieve.

The influence of the large aperture on the analysis is too great. the proportion of the large aperture is limited by the size of the test sieve. In many cases, due to the so-called "near sieve hole" the process becomes complicated by the fact that the particles of "basic size" lead to clogging of the screen holes and reduce the effective area of the screen surface.

The screening process can be divided into two stages. first, the particles that are much smaller than the sieve hole are screened out, which can be completed quickly; second, the particles that are "close to the sieve hole" are screened out.

The particles of the basic size of the sieve holes are gradually reduced, which is difficult to complete. In these two stages, all particles on the sieve surface have a chance to Ideally, each particle would have a separate, largest-size mesh, but for most sizes this is impractical.

The effectiveness of screening depends on the amount of material loaded and the movement pattern of particles on the screen.

If too much material is loaded, many particles will be crowded together at the bottom of the screen, and not every particle will have the opportunity to be in the lowest position.

The test is completed in a reasonable time. Therefore, the loading material should be limited, which also meets the requirement that the screen material should be kept within a reasonable time.