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

GB/T 20405.3-2024

Replacing GB/T 20405.3-2006

**Urine-absorbing aids for incontinence - Polyacrylate superabsorbent
powders - Part 3: Test method for determination of the particle size
distribution by sieve fractionation**

失禁者用尿液吸收剂 聚丙烯酸酯高吸水性粉末 第3部分：用筛分法测定粒径分布
的试验方法

(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 3 of GB/T 20405 "Polyacrylate super absorbent powder for urine absorbent for incontinence".

GB/T 20405 has published the following parts.

- Part 1: Method for determination of pH value;
- Part 2: Test method for the determination of residual acrylate monomer content;
- Part 3: Test method for particle size distribution by sieving;
- Part 4: Determination of moisture content by loss on heating;
- Part 5: Determination of water absorption in physiological saline by weighing method.

This document replaces GB/T 20405.3-2006 "Test method for properties of polymer matrix absorbent materials for urine absorbents for incontinence" Part 3: Determination of particle size distribution by sieving method", compared with GB/T 20405.3-2006, in addition to structural adjustments and editorial changes, the main the main technical changes are as follows.

- a) Added warnings throughout the text;
- b) The scope has been changed (see Chapter 1, Chapter 1 of the 2006 edition);
- c) The normative references have been changed (see Chapter 2, Chapter 2 of the 2006 edition);
- d) Added the terms and definitions of sample and specimen (see Chapter 3);

- e) Added reagent and material requirements (see Chapter 5);
- f) Changed the requirements for analytical balance (see 6.1, 4.1 of the 2006 edition), changed the requirements for beaker (see 6.2, 4.2 of the 2006 edition), and changed Changed the requirements for sieve shakers (see 6.3, 4.3 of the 2006 edition), changed the requirements for stainless steel sieves (see 6.4, 4.4), changed the brush requirements (see 6.4, 4.5 of the 2006 edition);
- g) Added environmental conditions requirements (see Chapter 7);
- h) Changed the sampling requirements (see Chapter 8, Chapter 5 of the 2006 edition);
- i) Added the requirement of "discard any wet or damaged sieves" (see 9.1), and changed the weighing method (see 9.4, 9.5, 9.6, 2006 6.4 and 6.5 of the 2006 edition), the setting requirements for the sieve shaker have been changed (see 9.9, 6.8 of the 2006 edition);
- j) Changed the reporting requirements (see Chapter 11, Chapter 9 of the 2006 edition);
- k) The precision has been changed (see Chapter 12, Chapter 8 of the 2006 edition).

This document is equivalent to ISO 17190-3:2020 "Polyacrylate superabsorbent powder for incontinence - Part 3.

Test Method for Particle Size Distribution by Sieving.

Introduction

Polymer matrix absorbent material is a type of urine absorbent for incontinent persons, and particle size distribution is a characteristic of polymer matrix absorbent material.

GB/T 20405 series of test methods are applicable to the detection of polyacrylate highly absorbent powders in sanitary products, including those for incontinence.

Materials testing for urine absorption aids. These test methods are designed specifically for testing materials and are not intended for, or applicable to, finished urine absorption aids.

Equipment testing.

GB/T 20405 is planned to consist of 11 parts.

--- Part 1.pH determination method. The purpose is to provide a method for determining the pH value of powdered highly water-absorbent polyacrylates.

method.

--- Part 2: Test method for determination of residual acrylate monomer content. The purpose is to provide a method for determining the highly absorbent polyacrylic acid powder Test method for residual sodium acrylate and total amount of acrylic acid (expressed as acrylic acid) in

--- Part 3: Test method for particle size distribution by sieving. The purpose is to provide a method for measuring particle size not greater than 850 μm Test method for particle size distribution of cross-linked polyacrylate superabsorbent powders.

--- Part 4: Determination of moisture content by weight loss on heating. The purpose is to provide a cross-linked polyacrylate highly absorbent powder Method for determining weight loss on heating when the moisture content is between 0% and 5%.

--- Part 5: Determination of water absorption by weighing method in physiological saline. The purpose is to provide a polyacrylate highly absorbent powder Method for determination of swelling capacity in saline.

--- Part 6: Determination of the saline solution retention rate after centrifugation by weighing method. The purpose is to provide a method for determining the high water absorption of polyacrylate A method to measure the ability of a polymer powder to retain saline solution after centrifugation.

--- Part 7: Determination of the amount of liquid absorbed under pressure by weighing method. The purpose is to provide high water absorption of polyacrylates under specific pressure.

Method for determination of absorption of saline solution by powders.

--- Part 8: Determination of flow rate by weighing method. The purpose is to provide a method for determining the mass flow rate of polyacrylate superabsorbent powder.

--- Part 9: Determination of density by weighing method. The purpose is to provide polyacrylates with high water absorption properties for incontinence urine absorption aids.

Method for determination of powder density.

--- Part 10: Determination of extractable polymer content by potentiometric titration. The purpose is to provide polyacrylate highly absorbent powder that can be used in salt Method for determination of the mass fraction of carboxylic acid groups of different chain lengths extracted from water.

--- Part 11: Determination of inhalable particle content. The purpose is to provide the inhalable particle content of polyacrylate super absorbent powder.

Determination method.

Polyacrylate high absorbent for incontinence Hygroscopic powders. Part 3: Determination by sieving method Test methods for particle size distribution Warning---This document does not claim to solve any safety issues related to its use. Users of this document are responsible for Personnel performing the tests are expected to have adequate training in all aspects of the procedure.

Point training.

1 Scope

This document specifies a test method for measuring the particle size distribution of cross-linked polyacrylate superabsorbent powders with a particle size not exceeding 850 μm .

It is only applicable to measurements with sieve-vibration separation. Tapping equipment is not expected to produce the same results.

This document applies to polymeric superabsorbent materials in powder form that flow freely under specified test conditions.

2 Normative references

The contents of the following documents constitute 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.

ISO 187 Standard atmospheric conditions for conditioning and testing of paper, board and pulp and procedures for monitoring atmospheric conditions and sample conditioning Note. GB/T 10739-2023 Standard atmospheric conditions for handling and testing of paper, paperboard and pulp samples (ISO 187:2022, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

Sample

A product or part of a product extracted from a production batch for testing purposes that is identifiable and traceable to its origin.

Sample

The portion of the sample (3.1) identified for testing.

4 General

A certain amount of highly absorbent powder is separated into fractions of specific particle size by passing through a series of standard sieves. Each fraction is weighed and Values are reported as a percentage of the total amount of material.