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

GB/T 20405.5-2025

**Urine-absorbing aids for incontinence - Polyacrylate superabsorbent
powders - Part 5: Test method for determination of the free swell
capacity in saline by gravimetric measurement**

失禁者用尿液吸收剂 聚丙烯酸酯高吸水性粉末 第5部分：在盐溶液中用称重法测定吸水率

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

The following parts have been published.

- 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 method;
- Part 5: Determination of water absorption in saline solution by gravimetric method.

This document replaces GB/T 20405.5-2006 "Test method for properties of polymer matrix absorbent materials for urine absorbents for incontinence" Part 5: Determination of water absorption in physiological saline by weighing method, compared with GB/T 20405.5-2006, except for structural adjustment and editorial changes in addition to the above, the main technical changes are as follows.

- a) Added the terms and definitions of "sample" and "specimen" (see 3.1 and 3.2), and deleted the terms and definitions of "non-woven fabric" and "bag" (See 3.1 and 3.2 of the 2006 edition);
- b) Added water conductivity requirements (see 5.1);
- c) "Sodium chloride solution" has been changed (see 5.2, 5.2 of the 2006 edition);
- d) Added suggestions on making and storing tea bags (see 5.3);

- e) Added the recommendation to use divided trays (see 6.3);
- f) The range and accuracy of analytical balance have been changed (see 6.4~6.6, 6.4 of the 2006 edition);
- g) Added metal scraper equipment (see 6.8);
- h) Changed "Sampling" (see Chapter 8, Chapter 7 of the 2006 edition), deleted the warning of protection and the time requirement for placing in the container (see Chapter 7 of the 2006 edition) added the method of shaking the container (see Chapter 8);
- i) The "Procedure" was changed (see Chapter 9, Chapter 8 of the 2006 edition), the step of taring the balance was added (see 9.2), and the test Sample quality requirements (see 9.3, 8.2 of the 2006 edition), added the handling of excess sample on the spatula (see 9.3);
- j) The "Reporting" requirements have been modified (see Chapter 11, Chapter 11 of the 2006 edition).

This document is modified to adopt ISO 17190.5:2020 "Polyacrylate superabsorbent powder for incontinence" Part 5.

Determination of water absorption in saline solution by weighing method.

The following editorial changes were made to this document.

--- Deleted the relevant content of particulate matter information provided by foreign institutions in Chapter 8;

--- Deleted the relevant content of Chapter 12 on the practices of foreign institutions.

The technical differences between this document and ISO 17190.5:2020 and their reasons are as follows.

--- Deleted the requirements on the software and versions used by computers in Chapter 11 to adapt to my country's technical conditions.

Introduction

Polyacrylate super absorbent powder is a kind of urine absorbent for incontinence. Its water absorption rate is one of the Characteristics.

GB/T 20405 series of test methods are applicable to the detection of polyacrylate highly absorbent powder in sanitary products.

It is specifically used for testing materials and is not used for and is not suitable for testing finished urine absorption aids.

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 heating weight loss method. The purpose is to provide a cross-linked polyacrylate highly absorbent powder water Method for determination of thermal mass loss of fraction content.

--- Part 5: Determination of water absorption by weighing in saline solution. The purpose is to provide a polyacrylate highly absorbent powder in 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 the 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 superabsorbent powder.

Method for measuring quantity.

Urine absorbent for incontinence Polyacrylate highly absorbent powder Part 5:
Determination of water absorption in saline solutions by gravimetric method Warning---This document does not address any safety issues associated with its use. Users of this document are responsible for conducting appropriate Personnel performing the tests should be adequately trained in all aspects of the procedure.

1 Scope

This document describes a test method for determining the water absorption of polyacrylate superabsorbent powders in saline solutions.

This document is applicable to the determination of incontinence urine absorbent---polyacrylate high water absorbent powder by weighing method under specified test conditions.

Water absorption in saline solution.

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.

ISO 187 Standard atmospheric conditions for the handling and testing of paper, board and pulp specimens 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) and test methods) Note. GB/T 6682-2008 Specifications and test methods for water used in analytical laboratories (ISO 3696:1987, MOD)

3 Terms and definitions

The following terms and definitions apply to this document.

Sample

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

Sample

Identify the portion of the sample (3.1) that is specifically intended for testing.