
**Urine-absorbing aids for incontinence —
Test methods for characterizing
polymer-based absorbent materials —**

Part 3:

**Determination of particle size distribution
by sieve fractionation**

*Aides pour absorption d'urine — Méthodes d'essai pour caractériser les
matériaux absorbants à base de polymères —*

*Partie 3: Détermination de la distribution granulométrique des particules au
moyen du fractionnement par tamisage*



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.ch
Web www.iso.ch

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this part of ISO 17190 may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 17190-3 was prepared by Technical Committee ISO/TC 173, *Technical systems and aids for disabled or handicapped persons*, Subcommittee SC 3, *Aids for ostomy and incontinence*.

ISO 17190 consists of the following parts, under the general title *Urine-absorbing aids for incontinence — Test methods for characterizing polymer-based absorbent materials*:

- Part 1: Determination of pH
- Part 2: Determination of amount of residual monomers
- Part 3: Determination of particle size distribution by sieve fractionation
- Part 4: Determination of moisture content by mass loss upon heating
- Part 5: Gravimetric determination of free swell capacity in saline solution
- Part 6: Gravimetric determination of fluid retention capacity in saline solution after centrifugation
- Part 7: Gravimetric determination of absorption under pressure
- Part 8: Gravimetric determination of flowrate
- Part 9: Gravimetric determination of density
- Part 10: Determination of extractable polymer content by potentiometric titration
- Part 11: Determination of content of respirable particles

ISO 17190 is intended to be used in conjunction with ISO 17191, *Urine-absorbing aids for incontinence — Airborne polyacrylate superabsorbent material in the workplace — Determination of the content in respirable dust by sodium atomic absorption spectrometry*.

Annex A of this part of ISO 17190 is given for information only.

Introduction

ISO 17190 consists of a series of test methods originally developed by *European Disposables and Nonwovens Association (EDANA)*. These test methods have been incorporated without technical changes into one International Standard consisting of eleven parts.

These test methods have been in practical use for several years, and have proven to be reliable with respect to common criteria of quality of test methods (validity, repeatability, etc.). They are applicable to polyacrylate superabsorbent materials, which occur in hygiene products, including urine-absorbing aids for incontinent persons. The test methods are addressed to the *material* exclusively. They are not intended to be used, and are not applicable for use with finished manufactured urine-absorbing aids.

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Urine-absorbing aids for incontinence — Test methods for characterizing polymer-based absorbent materials —

Part 3:

Determination of particle size distribution by sieve fractionation

1 Scope

This part of ISO 17190 specifies a method for measuring particle size distributions from 45 µm to 850 µm of cross-linked polyacrylate (PA) superabsorbent powders.

In general, this method is expected to be applicable to powdered polymeric superabsorbent materials that are free-flowing at temperatures between 15 °C and 35 °C.

2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this part of ISO 17190. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of ISO 17190 are encouraged to investigate the possibility of applying the most recent edition of the normative document indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 5725-2, *Accuracy (trueness and precision) of measurement methods and results — Part 2: Basic method for the determination of repeatability and reproducibility of a standard measurement method*

3 Principle

A defined amount of superabsorbent powders is split into specific particle size fractions upon passing through a sequence of standard sieves. Each fraction is weighed and the value reported as a percentage of the total amount of material.

4 Apparatus

4.1 Analytical balance, capable of weighing, to the nearest 0,01 g, masses up to 300 g.

4.2 Beaker, glass or plastic, of 150 ml capacity.

4.3 Sieve shaker, type Retsch VE 1000 or equivalent, capable of holding five standard sieves of 200 mm diameter, with bottom receiving pan, grounded for avoiding static electricity.

4.4 Standard sieves, 200 mm diameter stainless steel sieves, with pore sizes of 45 µm, 150 µm, 300 µm, 600 µm and 850 µm, with bottom receiving pan and top lid.

4.5 Brush, for example made of camel's hair, for cleaning of standard sieves.