INTERNATIONAL STANDARD

ISO 17190-4

Second edition
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Urine-absorbing aids for incontinence — Polyacrylate superabsorbent powders —

Part 4: Test method for estimation of the moisture content as weight loss upon heating

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

Partie 4: Détermination de la teneur en humidité au moyen de la perte de masse par chauffage

ISO 17190-4:2020
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CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
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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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html.

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This document was prepared by Technical Committee ISO/TC 173, *Assistive products*, Subcommittee SC 3, *Aids for ostomy and incontinence*.

This second edition cancels and replaces the first edition (ISO 17190-4:2001), which has been technically revised. The main changes compared to the previous edition are as follows:

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— full text review and new laboratory analysis with statistical evaluation.

A list of all parts in the ISO 17190 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

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Urine-absorbing aids for incontinence — Polyacrylate superabsorbent powders —

Part 4: Test method for estimation of the moisture content as weight loss upon heating

WARNING — This document does not claim to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this document to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use. It is expected that the person performing this test has been fully trained in all aspects of this procedure.

1 Scope

This document provides a test method for the evaluation of mass loss upon heating for cross-linked polyacrylate superabsorbent powders.

This method is applicable to powdered polymeric superabsorbent materials that are free-flowing under the specified test conditions. Substances other than water that are volatile in this temperature range will interfere. The onus is on the polymer formulator/producer to decide if such interference is possible and either exclude the method from use, provide an alternative or modify the method accordingly.

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2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 187, *Paper, board and pulps — Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

3.1
sample
product or portion of a product taken from a production lot for testing purposes and identifiable and traceable back to its origin

3.2
specimen
specific portion of the identified *sample* (3.1) upon which a test is performed

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4 Principle

This procedure determines the mass loss upon dehydration of the test portion in an electrically heated drying oven at (105 ± 2) °C at atmospheric pressure.

5 Reagents and materials

None.

6 Apparatus

6.1 Analytical balance, capable of weighing a sample amount of 4 grams plus the weight of the drying container with an accuracy of ± 0,001 g.

6.2 Drying container, (glass or aluminium dish), with corresponding removable lid and at least 8 cm diameter so that an even layer of polymer can be dispersed for efficient drying.

6.3 Air-circulating thermostatic oven, capable of maintaining a temperature of (105 ± 2) °C.

6.4 Desiccator, with indicating silica gel (or equivalent) as an active drying agent.

6.5 Spatula, capable of holding about 1 g of polyacrylate superabsorbent powder.

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7 Conditioning

Samples shall be delivered in a closed container, to prevent absorption of atmospheric moisture. Allow the closed container to equilibrate to the laboratory conditions. The preferred test conditions are (23 ± 2) °C and (45 ± 15) % relative humidity. If these conditions are not available, test at ambient conditions and report the temperature and relative humidity. Measure these laboratory conditions in accordance with ISO 187.

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8 Sampling

WARNING — Powder Handling – The German Commission for the Investigation of Health Hazards of Chemical Compounds in the Work Area (MAK Commission) has provided a guideline value for long-term exposure to the respirable portion of superabsorbent polyacrylate dust of 0,05 mg.m-3. The respirable portion is defined as those particles of less than 10 µm diameter. Commercial superabsorbent polymers typically contain less than 0,1 % of such particles. Precautions should be taken to avoid routine exposure to atmospheric respirable particles above this guideline value.

8.1 Before taking a test portion out of the container to run the test, rotate the container five to ten times in a three-dimensional figure of eight motion (see Figure 1), so as to obtain a homogeneous product. For that matter, sample bottles should not be filled more than 80 % of their nominal capacity.

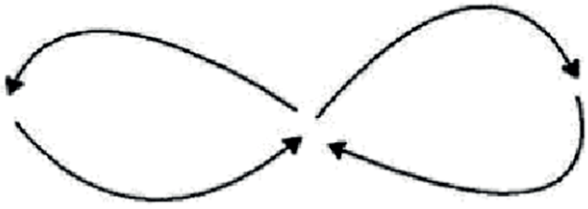

Figure 1 — Sense of motion of the container

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