INTERNATIONAL STANDARD

ISO 11948-2

First edition
1998-04-01

Urine-absorbing aids —

Part 2:
Determination of short-time liquid release (leakage) under conditions of light incontinence and low pressure

Aides pour absorption d'urine —

Partie 2: Détermination des performances relatives aux dégagements de liquide (fuites) de courte durée dans des conditions d'incontinence légère et de basse pression

Contents

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet central@iso.ch
X.400 c=ch; a=400net; p=iso; o=isocs; s=central

Printed in Switzerland

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.

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.

International Standard ISO 11948-2 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 11948 consists of the following parts, under the general title *Urine-absorbing aids*:

— *Part 1: Whole-product testing*
— *Part 2: Determination of short-time liquid release (leakage) under conditions of light incontinence and low pressure*

Introduction

The test method described in this part of ISO 11948 was selected from those used in the ISO Pad Leakage Project 2, in which a variety of disposable bodyworn urine-absorbing aids were tested in various ways in the laboratory and by a user population of about 100 lightly incontinent women from eight different countries, the majority of whom were ambulatory and residing in their own homes.

The method measures the amount of liquid release (leakage) of the absorbing material in the crotch area of a urine-absorbing aid under defined conditions of time and pressure. Other conditions of time and pressure could be used, but would give different test results and could not be stated to comply with this standardized procedure.

In addition to liquid release under the conditions of time and pressure required in this test method, urine-absorbing in-use performance is affected by many other factors, such as: different pressures placed on the product than those specified here; the posture of the user (e.g. sitting, standing, moving, lying down); the flowrate at which the user loses urine; the amount of urine lost; and how well the product is put on.

Urine-absorbing aid user performance is also known from user trials to be affected by composition and design features, such as shaping; profiling; composition of the absorbent core; elastication; and the kind of fixation system used to keep the product close to the body. The present method does not differentiate these product features. Further, the method may not accurately reflect in-use performance of absorbing aids whose absorbent cores are designed to be non-uniform in composition and in absorbing properties in the test area.

International Standard ISO 9949, parts 1 to 3, *Urine-absorbing aids - Vocabulary*, serve as general guidance for the work within this field.

Urine-absorbing aids —

Part 2:
Determination of short-time liquid release (leakage) under conditions of light incontinence and low pressure

1 Scope

This part of ISO 11948 specifies a method for determining the amount of liquid that is released (leakage) from a wet bodyworn urine-absorbing aid when compressed at 1,5 kPa.

The method is applicable for testing of products that are intended to be used only for very light urine incontinence reasons.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 11948. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 11948 are encouraged to investigate the possibility of applying the most recent edition of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 384:1978, *Laboratory glassware — Principles of design and construction of volumetric glassware*.
ISO 534:1988, *Paper and board — Determination of thickness and apparent bulk density or apparent sheet density*.
ISO 536:1995, *Paper and board — Determination of grammage*.
ISO 3696:1987, *Water for analytical laboratory use — Specification and test methods*.
ISO 5637:1989, *Paper and board — Determination of water absorption after immersion in water.*
ISO 6353-2:1983, *Reagents for chemical analysis — Part 2: Specifications — First series*.
ISO 8787:1986, *Paper and board — Determination of capillary rise — Klemm method.*

3 Definitions

For the purposes of this part of ISO 11948, the following definitions apply.

3.1 urine-absorbing aid:
Product containing material for the purpose of absorbing urine.

3.2 crotch area:
Area (of a urine-absorbing aid) of nonspecific dimensions located upon the absorbent core of the urine-absorbing aid such that its central point is coincident with the centrepoint of the core itself.

NOTE: The shapes of absorbent cores make a more specific definition difficult, but the centrepoint of the core is best approximated as the intersection of the imaginary lines that would bisect the core in each of its principle directions, length and width.

4 Principle

25 ml of test liquid is applied to the crotch area of a whole pad and left to soak for 1 min. A weighed piece of filter paper is then applied to the wetted crotch region and compressed under a pressure of 1,5 kPa for 1 min. After this time, the pressure is removed, the filter paper reweighed and the gain in mass of the filter paper is recorded as the "liquid release (leakage)".

5 Conditioning

5.1 Test samples

Urine-absorbing aids shall be removed from packing and unfolded and shall be conditioned in an atmosphere of 23 °C ± 2 °C and (50% ± 5%) relative humidity (RH) for 24 h to 36 h prior to testing.

5.2 Filter paper

Filter paper (8.2) shall be conditioned in an atmosphere of 23°C ± 2°C and 50% RH ± 5% RH for 24 h prior to use.

6 Test conditions

Urine-absorbing aids shall be tested at 23°C ± 2°C and 50% RH ± 5% RH.

7 Reagent

7.1 Test liquid, prepared at 23°C ± 2°C comprising Grade 3 distilled water, as specified in ISO 3696, and containing 9,0 g/l sodium chloride, as specified in ISO 6353-2.

8 Apparatus

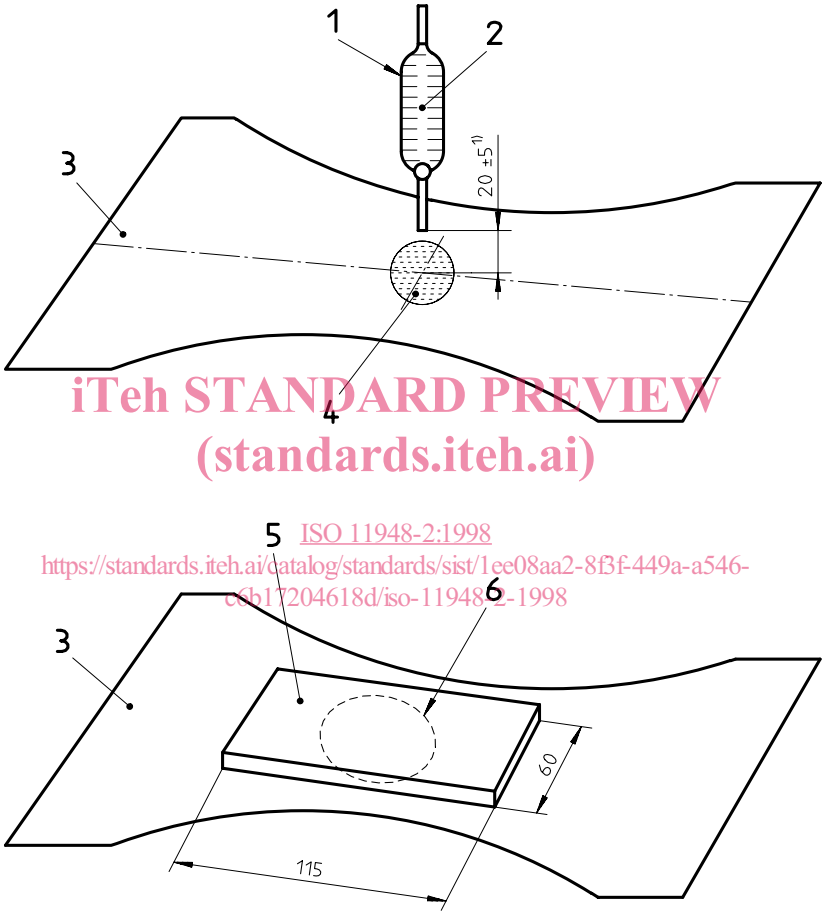
8.1 Top-loading balance, capable of measuring accurately to ± 0,001 g.

8.2 Filter paper , complying with the specifications in Table 1.

NOTE - Circular Whatman No.1 filter paper of diameter 110 mm is an example of a suitable product available commercially. This information is given for the convenience of users of this part of ISO 11948 and does not constitute an endorsement by ISO of this product.

8.3 Pipette, calibrated to deliver 25 ml of water in 20 s ± 5 s at 20°C and complying with the general requirements for class A or B volumetric glassware as specified in ISO 384. The general style of the pipette to be used is shown in figure 1.

Dimensions in millimetres



Key

1 Pipette (of 25 ml capacity) (see 8.3)
2 0,9 % saline solution (see 7.1)
3 Pad core
4 Crotch area (see 3.2)
5 Weight (see 8.4)
6 Filter paper beneath weight (see 8.2)

1) See 9.4

NOTE: The pad core shown is only an example. Many other shapes and sizes will be encountered.

Figure 1 — Equipment for use in the test

Table 1 — Filter paper properties

Property	Units	Test method reference	Specification	
			Target	**Limits**
Grammage	g/m^2	ISO 538	87	78 to 96
Thickness	micrometres (µm)	ISO 534	180	154 to 208
Klemm absorption rate	s/7,5 cm	ISO 8787	780	max. 900
Absorption capacity	mg/cm^3	ISO 5637	16	min. 14

8.4 Weight, 115 mm long, 60 mm wide, having a mass of 1,050 kg ± 0,002 kg.

NOTE 1 This provides a pressure of 1,5 kPa when laying on a 115 mm x 60 mm area. If necessary with respect to the shape of the product, the dimensions of the weight may be adjusted, as long as the stated pressure of 1,5 kPa is obtained.

NOTE 2 The weight may be made from a rigid, noncorroding material of the user's choice, such as brass, stainless steel or rigid plastic.

8.5 Stopwatch, or similar timing device.

9 Procedure

9.1 Place a urine-absorbing aid absorbent face up, flat, on the work surface.

9.2 If the urine-absorbing aid has elastication, cut the elastics so that it will lay flat on the work surface, ensuring that a route for absorbing material to escape is not created.

9.3 Using the balance (8.1), record the dry mass of the filter paper to the nearest 0,001 g.

9.4 Fill the pipette (8.3) and holding it with its tip 20 mm ± 5 mm above the surface at the crotch area allow 25 ml of liquid to flow freely onto the test specimen.

9.5 As soon as the liquid has been absorbed, or after 1 min has elapsed from the application of the liquid, whichever is first to occur, place the preweighed filter paper on the surface at the crotch area, taking care not to apply any pressure.

9.6 Apply the weight (8.4) centrally to the urine-absorbing aid and allow to stand for 1 min ± 5 s (see figure 1).

9.7 Remove the weight and, using the balance (8.1), immediately reweigh the filter paper accurately to 0,001 g.

9.8 Calculate and record the "liquid released (leakage)" as follows:

Subtract the dry mass of filter paper from the wet mass of filter paper to give the mass of liquid released (leakage) and record to the nearest 0,01 g.

9.9 Repeat steps 9.1 to 9.8 until at least five samples of the urine-absorbing aid have been tested.

9.10 Calculate and record the arithmetic mean of the mass of liquid released (leakage) for each sample, to the nearest 0,01 g.

10 Test report

The test report shall include at least the following information:

a) a reference to this part of ISO 11948;

b) identity of the urine-absorbing aid tested;

c) the number of individual tests;

d) for each individual test, report the amount "liquid released (leakage)" to the nearest 0,01 g;

e) for all of the tests done on each urine aid tested, report the arithmetic mean "liquid released (leakage)" results to the nearest 0,01 g.

f) date and place of testing;

g) any other information as agreed between product supplier and customer;

h) any deviation from the method specified in this part of ISO 11948 which may have influence on the test results.