



DRAFT EAST AFRICAN STANDARD

Sanitary towels — Specification — Part 1: Disposable

EAST AFRICAN COMMUNITY

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Foreword

Development of the East African Standards has been necessitated by the need for harmonizing requirements governing quality of products and services in the East African Community. It is envisaged that through harmonized standardization, trade barriers that are encountered when goods and services are exchanged within the Community will be removed.

The Community has established an East African Standards Committee (EASC) mandated to develop and issue East African Standards (EAS). The Committee is composed of representatives of the National Standards Bodies in Partner States, together with the representatives from the public and private sector organizations in the community.

East African Standards are developed through Technical Committees that are representative of key stakeholders including government, academia, consumer groups, private sector and other interested parties. Draft East African Standards are circulated to stakeholders through the National Standards Bodies in the Partner States. The comments received are discussed and incorporated before finalization of standards, in accordance with the Principles and procedures for development of East African Standards.

East African Standards are subject to review, to keep pace with technological advances. Users of the East African Standards are therefore expected to ensure that they always have the latest versions of the standards they are implementing.

The committee responsible for this document is Technical Committee EASC/TC 061, *Textiles, textile products and accessories*.

This fourth edition cancels and replaces the third edition (EAS 96-1: 2018), which has been technically revised.

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

Sanitary towels — Specification — Part 1: Disposable

1 Scope

This Draft East African Standard specifies requirements, sampling and test methods for disposable sanitary towels (also known as sanitary pads/sanitary napkins).

This standard does not apply to reusable sanitary towels.

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.

EAS 377 (all parts), *Cosmetics and cosmetic products*

ISO 139, *Textiles — Standard atmospheres for conditioning and testing*

ISO 3071, *Textiles — Determination of pH of aqueous extract*

ISO 6887-1, *Microbiology of the food chain — Preparation of test samples, initial suspension and decimal dilutions for microbiological examination — Part 1: General rules for the preparation of the initial suspension and decimal dilutions*

ISO 21149, *Cosmetics — Microbiology — Enumeration and detection of aerobic mesophilic bacteria*

ISO 21150, *Cosmetics — Microbiology — Detection of Escherichia coli*

ISO 22198, *Textiles — Fabrics — Determination of width and length*

ISO 22717, *Cosmetics — Microbiology — Detection of Pseudomonas aeruginosa*

ISO 22718, *Cosmetics — Microbiology — Detection of Staphylococcus aureus*

3 Terms and definitions

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

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

— ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

sanitary towel

hygienic composite product with a porous top covering, an absorbent filler and a water-resistant protective bottom barrier used by women and girls to absorb menstrual flow

3.2

package

unit pack of sanitary towels as declared by a manufacturer that can be purchased by a consumer

3.3

leakage

any fluid not absorbed and retained within the absorbent filler

3.4

absorbent filler

layer enclosed within the top covering and the bottom protective barrier responsible for absorbing and retaining menstrual flow

4 Requirements

4.1 General

All materials, dyes and chemicals used in the manufacture of sanitary towels shall not cause any undesirable effects to the skin.

NOTE If harsh materials are used in the manufacture of sanitary towels, these may cause discomfort and body rashes on the delicate skin due to undesired friction.

4.2 Materials

4.2.1 Absorbent filler

When visually examined, the absorbent filler shall be white or off-white in colour and shall be free from any water-soluble colouring matter when tested in accordance with Annex A. It shall not contain extraneous materials, which are not designed to enhance performance.

4.2.2 Covering

The absorbent filler covering shall be made of good quality fabric with sufficient porosity to permit the assembled towel to meet the absorbency requirement.

4.2.3 Protective barrier

There shall be no wetting of outer surface and no water penetration of the bottom protective barrier, when tested in accordance with Annex B.

4.3 Workmanship and finish

4.3.1 Absorbent filler

The absorbent filler shall be:

- a) continuous and neatly cut to the required size;
- b) free from hard lumps;
- c) completely covered and sealed; and
- d) free from wrinkles that are not a design feature.

4.3.2 Securing mechanism

Sanitary towels shall have a securing mechanism. Any of the following may be used:

- a) loops or tabs which shall extend beyond the length of the filler material;
- b) adhesive strip or patch; and
- c) wings with adhesive which shall be of sufficient length in such a manner as to form folds around the panty/brief for securing the sanitary towel when in use.

4.3.3 Protective barrier

The sanitary towel shall have a protective barrier on one side, which shall be clearly identifiable with a mark, colour or some other means.

4.3.4 Freedom from defects

The sanitary towel when visually examined shall be free from defects, which affect the appearance and utility such as oil stains, dirt, soil particles and hard lumps.

4.3.5 Prohibited substances

Any additives or scents shall not contain prohibited substances in accordance with the relevant parts of EAS 377.

4.4 Performance requirements

The sanitary towel shall comply with the performance requirements given in Table 1 when tested in accordance with the methods specified therein.

Table 1 — Performance requirements for sanitary towels

S/N	Characteristic		Requirement	Test method
i	Absorbency capacity		No leakage	Annex C
ii	Absorbency rate, s, max.	1 st gush	10	Annex C
		2 nd gush	15	
iii	Rewet under load, g, max.		5	Annex C
iv	pH of aqueous extract		5.5 – 8.5	ISO 3071, Method B ^a
v	Moisture content of filler material, % m/m, max.		8	Annex D
vi	Water soluble extract of filler material, %, m/m, max.		1.0	Annex E
vii	Dimensions of absorbent filler, mm, min.	Width	60	ISO 22198
		Length	180	

^a For products containing SAP or jelly forms, during sample preparation dilute 2 g of sample with 250 ml of distilled water before determining the pH.

4.5 Microbiological requirements

4.5.1 When packed in sterile conditions as declared by the manufacturer (see 6.1 c) sanitary towels shall pass tests for sterility when tested in accordance with ISO 6887-1.

4.5.2 When packed in non-sterile condition, disposable sanitary towels shall comply with the requirements given in Table 2 when tested in accordance with the test methods given therein:

Table 2 — Microbiological requirements for disposable sanitary towels

S/N	Parameter	Requirement	Test method
ii	Total viable bacterial count, cfu/g, max.	1 000	ISO 21149
iii	<i>Pseudomonas aeruginosa</i> , cfu/g	Not detected	ISO 22717
iv	<i>Staphylococcus aureus</i> , cfu/g	Not detected	ISO 22718
vi	<i>Escherichia coli</i> , cfu/g	Not detected	ISO 21150

4.6 Flushability

When declared to be flushable in water closets, sanitary towels shall be manufactured from dispersible material, which shall pass the test described in Annex F.

5 Packaging

5.1 Package

Sanitary towels shall be supplied in packages made of suitable materials, which are sealed so as to protect them from moisture, soiling and contamination during storage and transportation.

5.2 Bulk packaging

5.2.1 When supplied in bulk, the bulk package shall be made of materials, which are strong enough to hold the number of declared packages and protect the quality of the product during handling, transportation and storage.

5.2.2 It shall be properly sealed to prevent the packages from spilling.

5.2.3 Only packages with the same batch number and containing the same size shall be packed together in a bulk package.

6 Labelling

6.1 Packages

The following information shall appear legibly and indelibly on the outside of each package:

- manufacturer's name and/or registered trade mark;
- the words "Sanitary towels", "Sanitary napkins" or "Sanitary pads";
- words 'Sterile' if applicable;
- words or symbol indicating whether flushable (if so declared/or claimed);
- securing mechanism;

- f) number of sanitary towels in a package;
- g) batch identification number;
- h) country of manufacture;
- i) disposal instructions;
- j) storage instructions;
- k) date of manufacture;
- l) expiry date; and
- m) size of the sanitary towel (such as “normal/regular, long, extra-long”);
- n) In case scents/fragrances are used, a declaration that the product is scented; and
- o) product composition (such as polyethylene, nylon, SAP).

6.2 Bulk packages

The following information shall appear legibly and indelibly on the outside of each bulk package:

- a) manufacturer's name and/or registered trade mark;
- b) the words “Sanitary towels/sanitary napkins/sanitary pads”;
- c) number of packages in a bulk package;
- d) words ‘Sterile’ if applicable;
- e) words or symbol indicating whether flushable (if so declared/or claimed);
- f) size of the sanitary towel; and
- g) expiry date.

7 Sampling

7.1 Lot

In any consignment all packages of the sanitary towels of the same size and type belonging to one batch of manufacture or supply shall constitute a lot.

7.2 Scale of sampling

7.2.1 Samples shall be tested from each lot ascertaining its conformity to the requirements of this specification.

7.2.2 The number of packages to be selected from a lot shall be in accordance with Table 3.

Table 3 — Scale of sampling

Number of packages in a lot	Number of packages to be selected
Up to 250	6
251 – 500	8
501 – 1 000	11
1 001 – 2 500	15
2 501 – 5 000	20
5 001 and above	30

7.2.3 The bulk packages and packages shall be selected at random.

7.3 Number of tests

7.3.1 Each package selected in accordance with Table 3 shall be inspected for packaging and labelling requirements.

7.3.3 Sanitary towels selected in accordance with Table 3 shall be examined for requirements given in Clause 4.

Annex A (normative)

Determination of water soluble colouring matter

A.1 Principle

Absorbent filler material is extracted in ethanol and then viewed for any colouring matter

A.2 Apparatus

A.2.1 Weighing balance

A.2.2 Narrow percolator

A.2.3 Cylindrical glass tube

A.3 Procedure

Extract 10 g of absorbent filler material in 100 ml ethanol in a narrow percolator until 50 ml of the extract are obtained. Pour the liquid into a clean cylindrical glass tube at least 20 cm wide and view the layer on a white background.

A.4 Test report

Bluish or greenish shade indicates the presence of colouring substance.

Annex B (normative)

Determination of water-resistance of protective barrier (Cone test method)

B.1 Apparatus

B.1.1 Funnel, metallic, glass or plastic of sufficient size for holding the test piece with water

B.1.2 Glass container, for collecting water under the funnel

B.1.3 Burette, for introducing water into the test piece

B.2 Test piece preparation

Cut a square test piece of approximately 6.5 mm in length from the protective barrier and fold into a cone without creasing the folds (see Figure B.1).

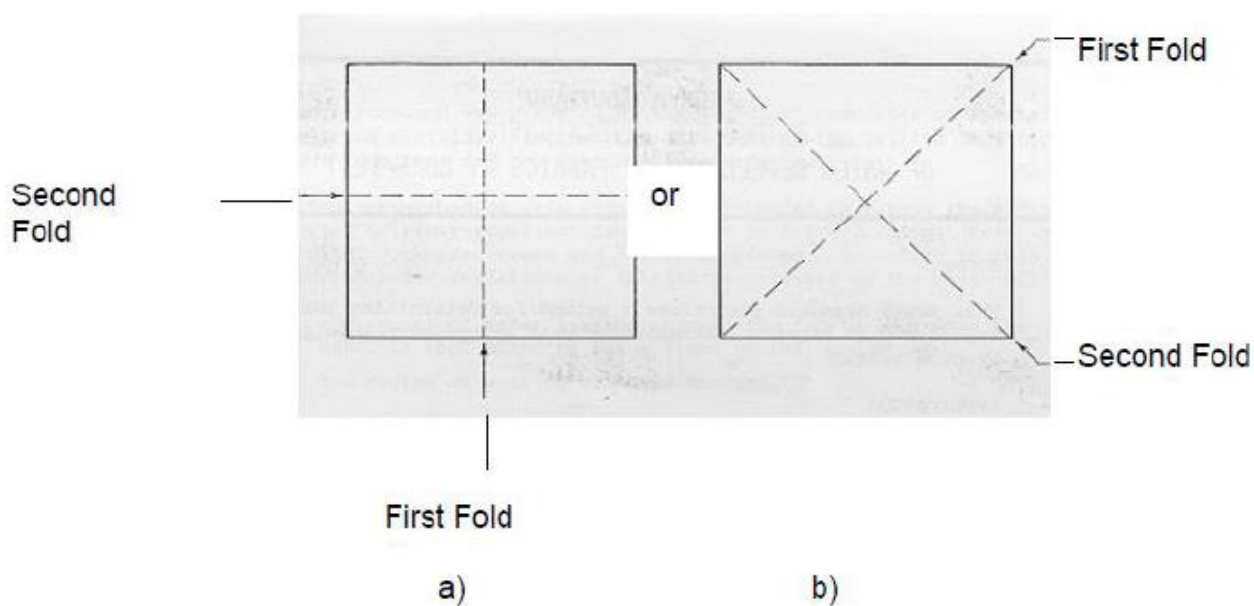


Figure B.1 — Folding of specimens

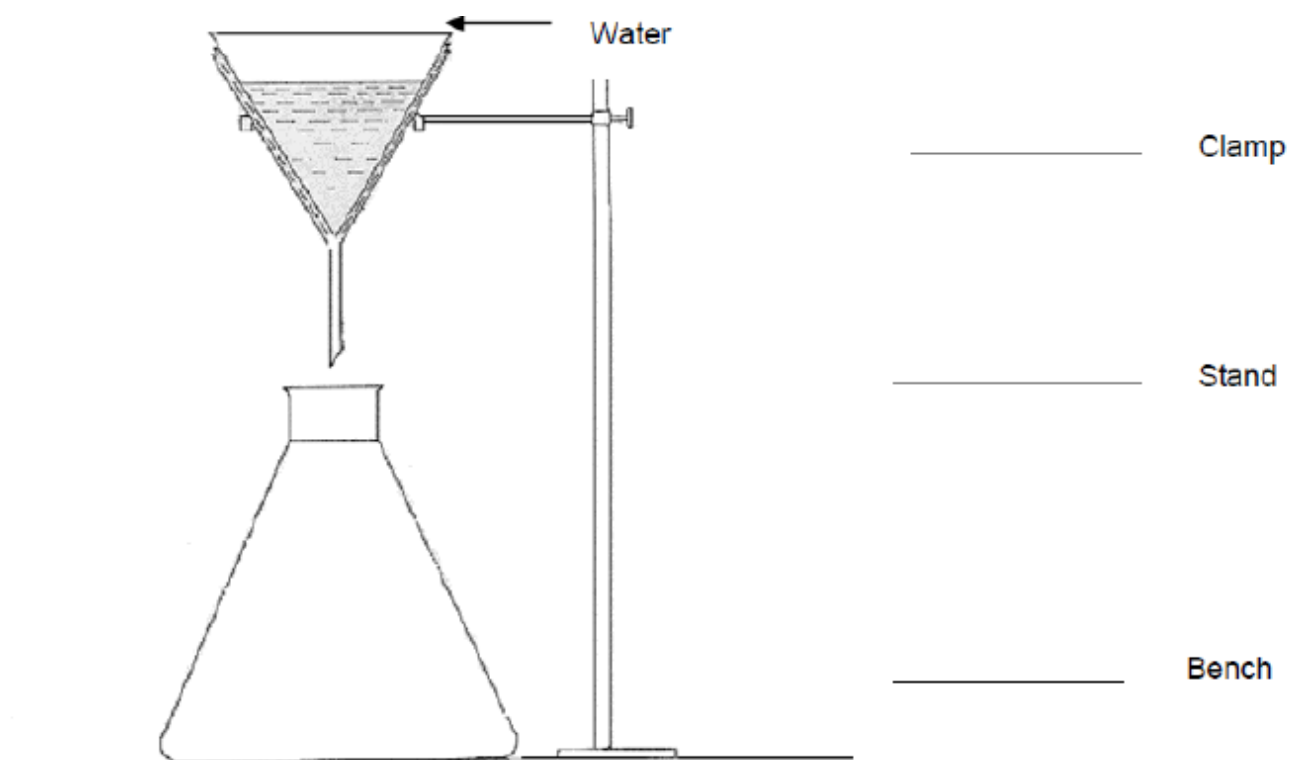


Figure B.2 — Test apparatus

B.3 Procedure

Assemble the apparatus as shown in Figure B.2. Pour slowly approximately 5 ml of distilled water into the cone assembly. Let it stand for 24 h.

B.4 Test report

Observe for water in the glass container and wetness of the outer surface of the cone.

Annex C (normative)

Determination of rate of absorption, absorptive capacity and rewet under load

C.1 Principle

A specific/fixed volume of test fluid is introduced to the sanitary pad under minimal pressure. The pad is then allowed time to absorb and retain the absorbed fluid after which a blotting paper is placed on the pad to absorb back the excess fluid.

C.2 Apparatus and materials

C.2.1 A rigid cover plate with a weight as given below and shown in Figure C.1:

Dimensions of the plate (200 mm \pm 2 mm) x (70 mm \pm 2 mm). Inner diameter of cylinder 40 mm \pm 2 mm, total Weight: 6300 g \pm 10 g representing a pressure of 4.40 kPa \pm 0.05 kPa (0.64 psi \pm 0.007 psi) for all sizes.

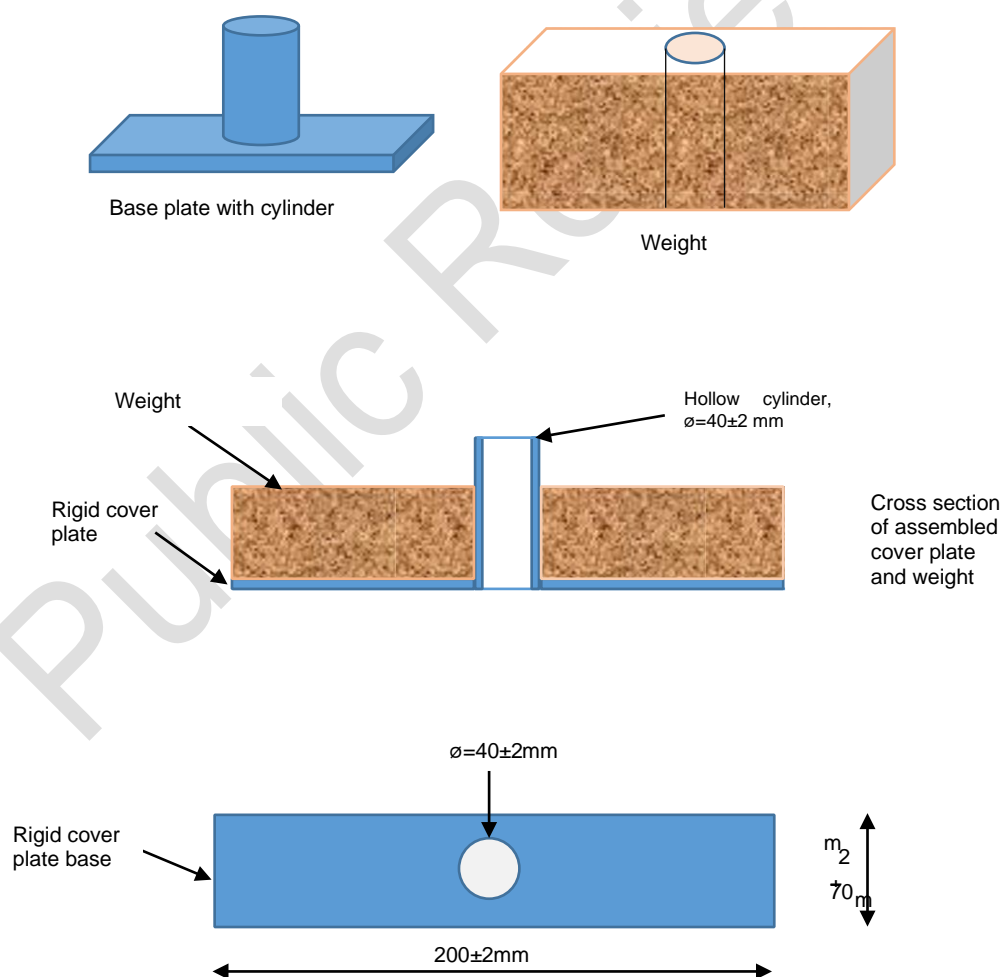


Figure C.1 — Apparatus and set up

C.2.2 Filter paper/blotting paper, having dimensions of 150 mm × 50 mm and conditioned together with the test samples

C.2.3 Graduated cylinder, 1-ml graduation

C.2.4 Stopwatch

C.2.5 Ruler (at least 2 cm longer as absorbent core of the sample, 1-mm graduation)

C.2.6 Weighing scale, with an accuracy of 0.01 g

C.2.7 Test solution, 1 % solution of potassium dichromate, made by dissolving 1 g $K_2Cr_2O_7$ in 100 ml distilled water

C.2.8 Metallic block, of mass 1 kg and dimensions 150 mm × 50 mm × 15 mm

C.3 Sample preparation and set-up

C.3.1 General

C.3.1.1 Condition the test samples in accordance with ISO 139.

C.3.1.2 Take five test specimens randomly from the test samples.

C.3.2 Determination of absorbency rate and absorbency capacity

C.3.2.1 Measure the length and width of the absorbent core and mark the midpoint, which will be the loading point.

C.3.2.2 Place pad with top sheet facing upward on a flat surface.

C.3.2.3 Place the rigid cover plate onto the sanitary pad ensuring that the plate is centered towards with the cylindrical opening placed over marked loading point. Gently place weights on the plate, to give the desired pressure of $4.4 \text{ kPa} \pm 0.05 \text{ kPa}$.

C.3.2.4 Fill the measuring cylinder with respective amount of saline solution;

The following amount of test solution shall be used: two gushes of 15 ml each, at intervals of 2 minutes to make a total of 30 ml.

C.3.2.5 Gently pour the first 15ml of the test solution onto the pad starting the stopwatch at the same time with the pouring;

C.3.2.6 Stop the stopwatch as soon as the test solution has been fully absorbed by the pad (i.e. all the wet sheen has disappeared). Record the time taken in seconds as the absorbency rate for the first gush.

C.3.2.7 Leave the pad and test assembly undisturbed for $2 \text{ minutes} \pm 5 \text{ seconds}$ (from the start of the first gush) before introducing the second 15ml portion of the test solution. Similarly record the time taken in seconds as the absorbency rate for the second gush.

C.3.2.8 Remove the weight and cover plate once the whole test solution has been absorbed. Leave pad undisturbed for a further $2 \text{ minutes} \pm 5 \text{ seconds}$ (from the start of the second gush)

C.3.2.9 Note the absorbency capacity by observing the back and sides of absorbent core of the sanitary towel for any leakage.

C.3.3 Determination of rewet under load

C.3.3.1 Weigh a stack of 5 dry filter papers/blotting papers and record the weight “W1”.

C.3.3.2 After a period of 5 minutes \pm 10 from the start of the second gush, place the stack on the absorption point of the sanitary pad.

C.3.3.3 Place the 1kg metallic block (2.8) on top of the stack of filter paper and leave undisturbed for 2 minutes.

C.3.3.4 After 2 min, remove the block and within 10 seconds determine the weight of the filter paper stack as “W2”.

C.3.3.5 Calculation of results.

$$Rewet (g) = W2 - W1 .$$

where

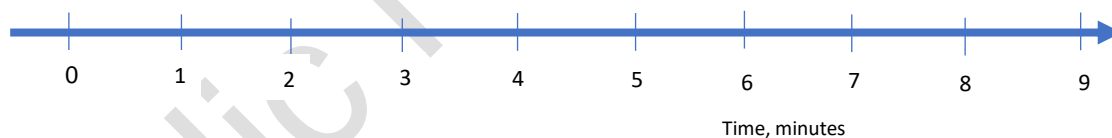
W_1 is the weight of stack of dry filter paper; and

W_2 is the weight of stack of wet filter paper.

C.3.4 Repeat the above procedure on the remaining 4 test specimens and record each result separately.

C.3.5 Report the average of the 5 samples.

Preparation
and set up



0
Introduce
1st gush

Record
time taken
to absorb
1st gush

2
Introduce
2nd gush

Record
time taken
to absorb
2nd gush

Remove
cover plate
once 2nd
gush is
absorbed

4
Observe
leakage

7
Place filter
paper and
1kg weight

9
Remove
1kg weight
and weigh
filter paper

Annex D **(normative)**

Determination of moisture content

D.1 Principle

A specimen of specified mass of filler material of sanitary towel is dried in an oven at specified temperature and the moisture content is determined.

D.2 Apparatus

D.2.1 Balance, with an accuracy of 0.05 % of the weighed mass

D.2.2 Sample container, waterproof when sealed, will be used for transfer of analysed material and during weighing.

D.2.3 Oven, well ventilated with a temperature of 102 °C to 105 °C

D.3 Sample preparation

D.3.1 Take a sufficient number of dry sample containers, number them and take their masses after they are conditioned the samples according to ISO 139.

D.3.2 Take five random pieces each weighing 5 g from the absorbent filler material of sanitary towel.

D.3.3 If the surrounding atmosphere is hot and humid, prevent water condensation on the internal and external surfaces of the container.

D.3.4 Handle the test pieces gently to prevent dirt or changes in water content. Do not touch the test pieces with your bare hands. Put the test pieces in a container just after taking them and close the container immediately.

D.4 Procedure

D.4.1 Dry the test pieces in an oven with a temperature of 102 °C to 105 °C. Open the containers lid and dry the specimen inside the container. Open the container for a moment, to balance the air pressure inside the container with the surrounding pressure; weigh the container that holds the specimen again and calculate the weight of the specimen.

D.4.2 First cycle of drying will last at least 30 min. Return the container with the test pieces to the oven, for at least half the first cycles' drying time. Take the container out and take the mass with the test pieces inside. Repeat the drying and weighing cycles. When the drying time on every cycle is at least half of the total previous drying cycle times, continue the process until the difference between two consecutive masses does not exceed 0.1 % of the original mass of the specimen.

D.5 Calculation

Calculate the moisture content using the following formula and round the results up to the nearest 0.1 %.

$$V = 100 \frac{a - b}{a - c}$$

where

a is weight of the container, in grams, with the specimen before drying;

b is weight of the container, in grams, with the specimen after drying;

c is weight of the container in grams; and

V is water content as percentage weight.

Annex E (normative)

Determination of water soluble extract

E.1 Apparatus

E.1.1 Weighing balance, sensitive to 1 mg

E.1.2 Conditioning chamber

E.1.3 Beaker, of more than 200-ml capacity

E.1.4 Measuring flask

E.1.5 Steam bath

E.1.6 Oven

E.2 Procedure

E.2.1 Weigh, approximately 12 g of the sample and expose to the standard atmosphere for testing textiles in accordance with ISO 139.

E.2.2 Weigh, to the nearest milligram, the conditioned test specimen.

E.2.3 Cut the test specimen into small pieces and boil the pieces in 200 ml of distilled water in a beaker for half an hour.

E.2.4 Filter into a 500-ml measuring flask. Extract the test specimen twice again for 15 min each and filter the aqueous extract into the same flask. Pour the solution into a beaker and concentrate it to a small volume. Then transfer it to a dish of known mass, washing the beaker with a little distilled water.

E.2.5 Evaporate the contents of the dish on a steam bath and dry in an air oven at 105 °C to 110 °C. Cool the dish in a desiccator and weigh. Heat again at 105 °C to 110 °C in the dry oven for 30 min and cool the dish in the desiccator and weigh.

E.2.6 Repeat this process of heating, cooling and weighing until the difference in mass between two successive weights is less than one milligram.

E.3 Calculation

The water soluble extract content, expressed as percent by mass, shall be calculated as follows:

$$100 \times \frac{m_1 - m_0}{m_2 - m_0}$$

where

m_0 is the mass, in grams, of the empty dish;

m_1 is the mass, in grams, of the dish with the residue after drying; and

m_2 is the mass, in grams, of the dish with the material taken for the test.

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Annex F (normative)

Determination of flushability

F.1 Apparatus

Use the flushing toilet equipment as described in Figure F.1. The pipes to the septic tank should be transparent acryl tubes to allow the sanitary end of the tube to an open tank so as to collect the products.

F.2 Test method

Throw three sanitary towels of test samples into the chamber pot, and flush water (8 to 12 litres per time) from the flush tank.

Dimensions in millimetres

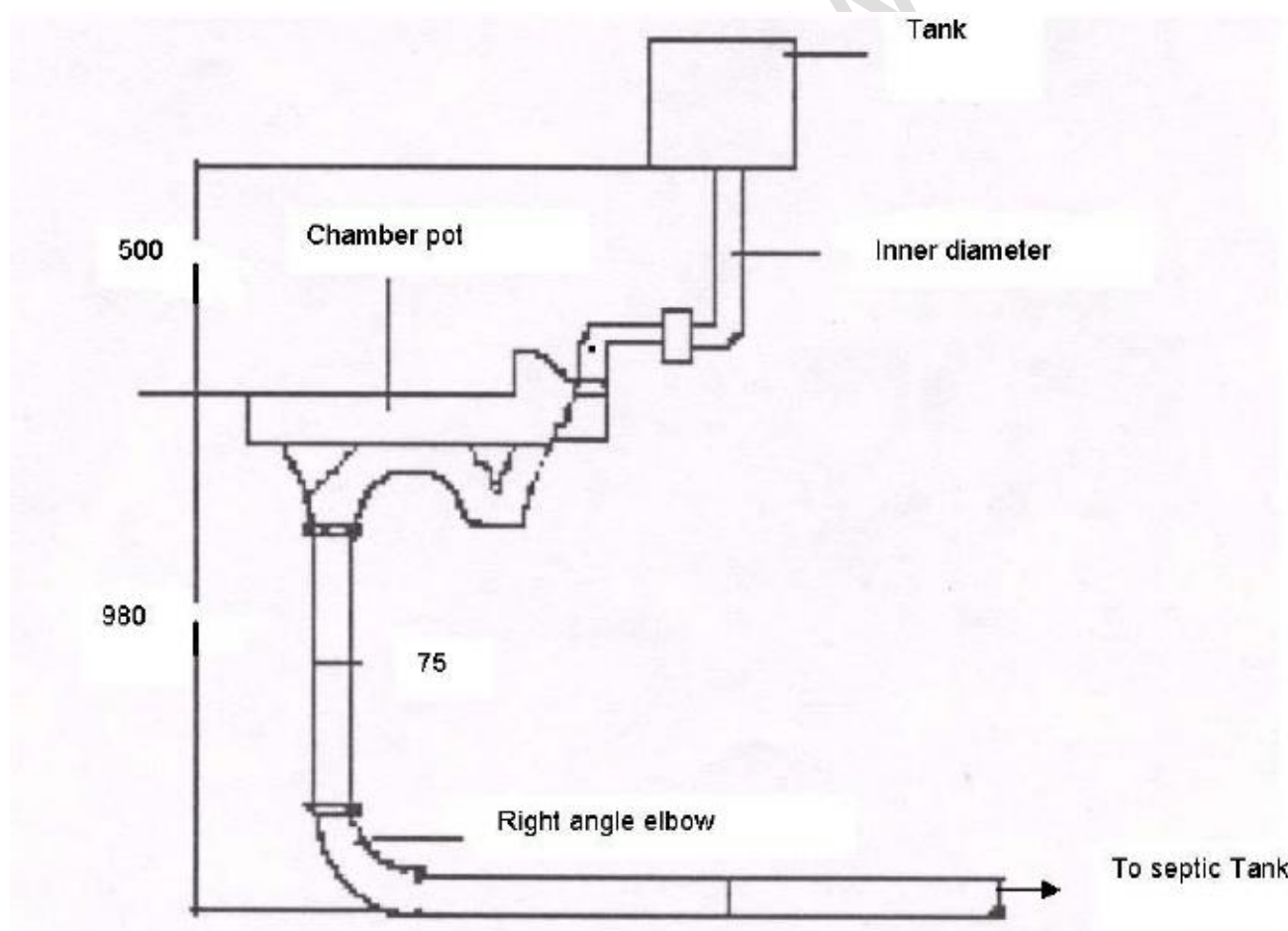


Figure F.1 — Flushing equipment

F.3 Test report

Report whether the sanitary towels are completely flushed down or not.

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Bibliography

EAS 96-1: 2018, *Sanitary towels — Specification— Part 1: Disposable (Second Edition)*

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