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EAST AFRICAN STANDARD

Sanitary towels — Specification — Part 2: Reusable

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

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Sanitary towels — Specification — Part 2: Reusable

1 Scope

This draft East African Standard prescribes the requirements and test methods for reusable sanitary towels (including reusable panty liners) for external use. This Standard does not apply to disposable 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.

ISO 3071, Textiles — Determination of pH of aqueous extract

ISO 4833-2, Microbiology of the food chain – Horizontal method for the enumeration of microorganisms – Part 2: Colony count at 30 C by the surface plating technique

ISO 6888-2, Microbiology of food and animal feeding stuffs — Horizontal method for the enumeration of coagulase-positive staphylococci (Staphylococcus aureus and other species) — Part 2: Technique using rabbit plasma fibrinogen agar medium

ISO 7218, Microbiology of food and animal feeding stuffs — General requirements and guidance for microbiological examinations (2nd Edition)

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 http://www.iso.org/obp

3.1
Sanitary towel/sanitary pad/sanitary napkin/panty liner
Feminine hygienic product made of fabric intended to absorb menstrual flow, daily vaginal discharge and post delivery flow.

3.2
Reusable sanitary pads
Washable hygienic sanitary towels with an absorbent upper layer and a leak proof protective barrier that delays or prevents potential leakage.

3.3
Package
Small unit set of sanitary pads as declared by the manufacturer

4 Description

4.1 Sanitary towels shall be described in accordance to their absorbance capacity

a) ultra-light flow;

b) light flow;

c) regular / normal for normal flow;

d) super or heavy flow; and

e) extra heavy flow.

5 Requirements

5.1 General

a) the reusable sanitary towels shall be manufactured, packed and stored under hygienic conditions;

b) the reusable sanitary towels shall be visibly clean and free from obvious defects; and

c) the reusable sanitary towels shall release soil and stain quickly when washing by hand and shall dry even in the absence of sunlight.

5.2 Materials

The materials used in the manufacture of reusable sanitary towels shall not harm the skin in contact, all outer layers of the product should be fit for direct contact with the skin and the colour/ fabric dye of the materials shall not come out during washing.

5.2.1 Top sheet (the layer which contacts skin)

Shall be of material that helps absorption, and shall have no harmful effect. The material used for the top layer should be soft to the touch and should not shed any fibres when rubbed dry or wet.

5.2.2 Protective barrier

Reusable sanitary pads shall have a protective barrier that delays or prevents potential leakage from the absorbent layer of the pad into the underwear

5.2.3 Fastening mechanism

There shall be a suitable device for fastening the pad for secure use. Fastening mechanism shall not be made of a ferrous metal that could rust and cause harm to skin

5.3 Size

The size of the product shall be declared.

5.3 Performance requirements

5.3.1 Absorbency and ability to withstand pressure after absorption

The reusable sanitary towels shall absorb the testing fluid when dripped at the centre of the pad at different rates as per table 1 and it shall not leak through at the bottom or sides of the sanitary towel, when tested in accordance with annex A

Table 1 — Absorbency capacity at different rates

Product category		Absorbency	
		Total Volume required to be absorbed	Volume required to be absorbed /minute
Panty liners	Ultra-light	2 ml	1 ml
Sanitary towels	Light	4 ml	2 ml
	Regular	8 ml	4 ml
	Heavy	16 ml	8 ml
	Extra heavy	30 ml	15 ml

5.3.2 pH

The sanitary towels shall be free from acids and alkali and the pH of aqueous extract of the absorbent material shall be 6 to 8 when tested in accordance with ISO 3071

5.3.3 Drying time

Reusable sanitary towels shall be dry in not more than most 6 hours when hang in direct sunlight.

5.3.4 Workmanship

When visually examined the sanitary towel shall be free from defects, lumps or wrinkles. Sanitary towels shall have no loose stitching, wings shall be even and there shall be no visible defects on the material. The materials shall be smooth to the touch.

5.3.5 Odour

The sanitary pads shall not contain any odour, either when dry or wet with clean water.

5.3.6 Durability

Each pad shall be of a durable construction designed to endure repeated use of 60 times of wearing and washing.

5.4 User and care instructions

There shall be user and care instructions in every packet of the sanitary towels. The user and care instructions shall be outlined in similar instructions as below to ensure proper use and care by the consumer.

a) before first use, wash with soap and clean water and allow to dry completely;

b) place pad in the knickers with the absorbent side facing up (Must be worn in properly fitting knickers);

c) close the fastening mechanism and wear. Ensure to check and change pads as needed throughout the day;

d) after use, rinse/soak in water. Pour away dirty water;

e) in clean water, wash clean with soap. Rub thoroughly; ensuring the absorbent layer has been sufficiently scrubbed clean;

f) rinse the pad again;

g) squeeze all the water out of the pad;

h) hang to dry outdoors. Must be completely dry before re-use;

i) store in a clean, dry place;

j) do not bleach; and

k) do not share.

5.5 Microbiological requirements

a) the total viable bacterial count, when determined in accordance with Annex B shall not exceed 1000 per gram of the sanitary towel; and

b) When tested, sanitary towel shall be free from Enterobacteriaceae, Staphylococcus aureus, and Pseudomonas aeruginosa respectively.

6 Packaging and Marking

6.1 Packaging

Reusable 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. Only packages with the same batch number shall be packed together.

6.2 Marking

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

a) the manufacturer’s name and/or registered trade mark;

b) the words “reusable sanitary towels/sanitary napkins/ pads/ panty liners”;

c) number of sanitary towels in a package;

d) size of the product;

e) absorbency (panty liner/light/normal/heavy flow);

f) use and care instructions, including warning to wash before first use;

g) storage instructions;

h) batch identification number;

i) country of manufacture; and

j) date of manufacture.

7 Sampling

7.1 Lot

In any consignment, all packages 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 2.

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

7.3 Number of tests

7.3.1 Each package selected as per table 2 shall be inspected for packaging and marking requirements

7.3.2 Sanitary towels selected as per table 2 shall be examined for requirements stipulated in clause 4

Table 2 –scale of sampling

Number of packages in a lot	Number of packages to be selected
Up to 250	6
251-500	8
501-1000	11
1001-2500	15
2501-5000	20
5001 and above	30

Annex A
(normative)

Method for determination of absorbency capacity

A.1 Apparatus

a) burette;

b) metallic block, of mass 1 kg and dimensions 150 mm x 50 mm x 15 mm

A.2 Reagents

1 % solution of potassium dichromate made by dissolving 1 g K_2Cr_2O7 in 100 mL distilled water

A.3 Procedure

A.3.1 Sanitary towel must be washed with soap and dried fully before test

A.3.2 Lay the sanitary towels on a flat level surface

A.3.3 Drip at the rate of 4 mL per minute, 8 mL of the fluid (see A.2) on to the centre of sanitary towel from a height of approximately 2 mm

A.3.4 After the towel has absorbed the full amount of fluid, place a metallic block of mass 1 kg (A.1.3) for one minute on the portion where the fluid was absorbed

A.4 Test report

Observe the back and sides of the sanitary towel for any leakage

Annex B
(normative)

Microbiological examination

B.1 Apparatus and equipment

Use apparatus and equipment complying with the relevant requirements of ISO 7218.

B.2 Media and reagents

B.2.1 General

Ensure compliance with the general requirements for the ingredients and for the preparation of media and reagents given in ISO 7218

B.2.2 Bacteriological peptone

Peptone	10 g
Disodium phosphate dodecahydrate	1 g
Sodium chloride	5 g
Mono-potassium phosphate	1.5 g

Dissolve the ingredients in distilled water and make up to 1 L. Adjust the pH value to be 7.0 ± 0.1 after sterilization. Dispense 300 mL volumes into flasks of capacity 500 mL and sterilize by autoclaving at 121 °C ± 2 °C for 20 min.

B.2.3 Plate count agar

Agar	15 g
Glucose	1 g
Tryptone	5 g
Yeast extract	2.5 g

Dissolve the ingredients in distilled water, made up to 1litre, and adjust the pH value to 7.2 ± 0.2. Dispense 15 mL volumes into bottles and sterilize by autoclaving at 121 °C ± 2 °C for 20 min.

B.2.4 Neutral red-bile salt peptone glucose medium

Peptone	20 g
Glucose	10 g
Bile salts No. 3	1.5 g

Sodium chloride	5 g
Neutral red	0.03 g
Crystal violet	0.002 g

Dissolve the ingredients in 400 mL of distilled water and make up to 500 mL boiling to aid solution. Adjust the pH value to 7.4 and filter to a clear solution. Dispense 10 mL volumes into bottles each containing a Durham tube and sterilize by autoclaving at 121 °C ± 2 °C for 20 min

B.2.5 Fluid soybean-casein digest medium

Pancreatic digest of casein	17 g
Papaic digest of soybean meal	3 g
Sodium chloride	5 g
Dibasic potassium phosphate	2.5 g
Dextrose	2.5 g

Dissolve the ingredients in distilled water and make up to 1 litre, warming slightly to aid solution. Cool the solution to room temperature and adjust the pH value to be 7.3 ± 0.2 after sterilization. Filter to clarify (if necessary), dispense into suitable containers, and sterilize by autoclaving at 121 ± 2 °C for 20 min.

B.2.6 Centrimide agar medium

Pancreatic digest of gelatine	20 g
Magnesium chloride	1.4 g
Potassium sulphate	10 g
Agar	13.6 g
Cetyltrimethylammonium bromide (Cetrimide)	0.3 g
Glycerine	10 mL

Dissolve all the solid ingredients in distilled water, make up to 1 L, and then add the glycerine. Heat, agitating frequently, and boil for 1 min. Adjust the pH value to be 7.2 ± 0.2 after sterilization. Dispense into suitable containers and sterilize by autoclaving at 121 °C ± 2 °C for 20 min.

B.2.7 *Pseudomonas agar* medium for detection of fluorescein

Pancreatic digest of casein	10 g
Peptic digest of animal tissue	10 g
Anhydrous dibasic potassium phosphate	1.5 g
Magnesium sulphate (MgSO4.7H2O)	1.5 g
Glycerine	10 mL
Agar	15 g

Dissolve all the solid ingredients in distilled water, make up to 1 L, and then add the glycerine. Heat, agitating frequently, and boil for 1 min. Adjust the pH value to be 7.2 ± 0.2 after sterilization. Dispense into suitable containers and sterilize by autoclaving at 121 °C ± 2 °C for 20 min.

B.2.8 *Pseudomonas agar* medium for detection of pyocyanin

Pancreatic digest of casein	20 g
Anhydrous magnesium chloride	1.4 g
Anhydrous potassium sulphate	10 g
Agar	15 g
Glycerine	10 Ml

B.3 Preparation of Test Suspension

Transfer 300 ml of the sterile solution of bacteriological peptone (B.2.2) to a sterile wide-mouthed jar of capacity not less than 1 litre and not more than 2 litres. The jar shall have a mouth of diameter not less than 150 mm and not more than 250 mm, and is fitted with a hermetically closing glass or metal-and-glass lid. Aseptically place the towel under test in the solution in the jar, fit the lid, agitate the contents of the jar for 2 min and then allow the jar to stand for 10 min. Repeat this agitating and standing procedure twice more. Aseptically remove about 100 ml of the test suspension for testing as described in B.4 below.

B.4 Procedure

B.4.1 Total viable bacterial count

Into each of three sterile petri dishes aseptically pipette a 1 mL portion of the test suspension. To each dish add 15 mL of freshly melted plate count agar that has been cooled to 45 °C, and mix well. Incubate, count and calculate the total count as described in ISO 4833 Part 2. From the total viable bacterial count and the mass of the sanitary towel, calculate the total viable bacterial count per gram of sanitary towel.

B.4.2 Examination for the presence of *Enterobacteriaceae.*

Aseptically add 10 mL of the test suspension to a bottle that contains neutral red-bile salt peptone glucose medium (B.2.4). Incubate the bottle for 24 h to 36 h at 37 ± 0.5°C and examine for the presence of *Enterobacteriaceae*as evidenced by the formation of acid and gas.

B.4.3 Examination for the presence of *Staphylococcus aureus*.

Use the media, reagents and procedure described in ISO 6888-2 to examine the test suspension (see B.3). As a control, pipette 0.1 mL of a 1:1000 dilution of an 18 h to 24 h culture of *Staphylococcus aureus* SATCC Sta 10 into *Staphylococcus* medium and proceed as with the test suspension.

B.4.4 Examination for the presence of *Pseudomonas aeruginosa*

a) Aseptically pipette 10 mL of the test suspension into 90 mL of fluid soybean-casein digests medium (B.2.5) and mix well. Incubate for 24 h at 30 °C to 35 °C. By means of an inoculating loop transfer a portion from the 24 h incubated sample tube of fluid soybean-casein digest medium to the dry surface of petri dishes each containing approximately 20 mL of Cetrimide agar medium (B.2.6). Incubate at 30 °C to 35 °C and examine after 24h, and again after 48 h incubation, for suspect colonies, bearing in mind that in general greenish fluorescent colonies are typical of *Pseudomonas aureginosa* and that in

its presence a gram stain examined microscopically will reveal gram-negative slender rod-shaped cells.

b) As a control, add 0.1 ml of a 1:1 000 dilution of an 18 h to 24 h culture of *Pseudomonas aeruginosa* SATCC Pse 11 mL to 100 mL of fluid soybean-casein digest medium (B.2.5), and proceed as with the test suspension.

c) If none of the colonies obtained from the test suspension conforms to the description given in i) above and the control culture has been satisfactorily recovered, deem the test sample to be free from *Pseudomonas aeruginosa.*

d) If colonies conforming to the description given in i) above are found, streak representative suspect colonies from the Cetrimide agar onto the surfaces of *Pseudomonas agar* medium for the detection of flourescein (B.2.7) and *Pseudomonas agar* medium for the detection of pyocyanin (B.2.8) to obtain isolated colonies. Cover and invert the petri dishes and incubate at 30 – 35 °C for at least 3 days. Examine the streaked surfaces under ultraviolet light for suspect colonies, as described in Table B.1.

Table B.1 — Description of colonies

Medium	Description of colonies
Pseudomonas agar for the detection of fluorescein	Generally colourless to yellowish Yellowish fluorescence in ultra violet light
Pseudomonas agar for the detection of pyocyanin	Generally greenish. Blue fluorescence in ultraviolet light

If any further doubt exists as to the identity of the colonies, obtain final confirmation by inoculating the suspect colonies to the wells on commercially available diagnostic kits in accordance with the manufacturer's instructions.

Bibliography

[1] US 1782:2017, *Reusable sanitary towels — Specification*

