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பொதுசனக் கருத்துரைக்கான கட்டளை வரைவு  
DRAFT STANDARD FOR PUBLIC COMMENT

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Draft Sri Lanka Standard  
SPECIFICATION FOR SINGLE-USE PANTY LINERS (ABSORBING AIDS)  
(DSLS ..... : .....)

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இவ்வரைவு இலங்கைக் கட்டளையெனக் கருதப்படவோ அன்றிப் பிரயோகிக்கப்படவோ கூடாது  
This draft should not be regarded or used as a Sri Lanka Standard.

අදහස් එවිය යුත්තේ : ශ්‍රී ලංකා ප්‍රමිති ආයතනය, 17, වික්ටෝරියා පෙදෙස, ඇල්විටිගල මාවත, කොළඹ 08.

Comments to be sent to: SRI LANKA STANDARDS INSTITUTION, 17, VICTORIA PLACE,  
ELVITIGALA MAWATHA, COLOMBO 08.

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මෙම කෙටුම්පතට අදාළ යෝජනා හා විවේචන නියමිත දිනට පෙර ලැබෙන්නට සැලැස්වුවහොත් අගය කොට සලකනු කටයුතු වේ. මෙම කෙටුම්පත පිළිගත හැකි බැව් හැඟෙන අය ඒ බව දන්වන්නේ නම් එය ආයතනයට උපකාරී වනු ඇත.

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Introduction

This Draft Sri Lanka Standard has been prepared by the Sri Lanka Standards Institution and is now being circulated for technical comments to all interested parties.

All comments received will be considered by the SLSI and the draft if necessary, before submission to the Council of the Institution through the relevant Divisional Committee for final approval.

The Institution would appreciate any views on this draft which should be sent before the specified date. It would also be helpful if those who find the draft generally acceptable could kindly notify us accordingly.

All Communications should be addressed to:

The Director General  
Sri Lanka Standards Institution,  
17, Victoria Place,  
Elvitigala Mawatha,  
Colombo 08.

**Draft Sri Lanka Standard**  
**SPECIFICATION FOR SINGLE-USE PANTY LINERS (ABSORBING AIDS)**

**DSLS -----: -----**

**Gr. 9**

**SRI LANKA STANDARDS INSTITUTION**  
**17, Victoria Place**  
**Elvitigala Mawatha**  
**Colombo 08**  
**Sri Lanka**

**Draft Sri Lanka Standard  
SPECIFICATION FOR SINGLE-USE PANTY LINERS (ABSORBING AIDS)**

**FOREWORD**

This Standard was approved by the Sectoral Committee on Textiles & Garments, and was authorized for publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on .....

The industry of hygiene products for women has been widely expanded during the last decade with many new product categories. The panty liner is one such, which can be used to absorb a discharge from the lower body including vaginal discharge or slight urinary incontinence.

This Standard is subject to the restrictions imposed under the National Medicines Regulatory Authority, Act No. 5 of 2015 and the regulation thereunder.

For the purpose of deciding whether a particular requirement of this Standard is complied with, the final value, observed or calculated, expressing the result of a test or an analysis shall be rounded off in accordance with **SLS 102**. The number of significant places retained in the rounded off value shall be the same as that of the specified value in this specification.

In the preparation of this Standard, valuable assistance derived from the following publications is gratefully acknowledged.

KS 2753: 2016	Disposable panty liners – Specification
GB/T 8939-2018	Sanitary absorbent pads (panty liner)
SLS 111: 2009	Specification for sanitary towels

**1 SCOPE**

This Standard prescribes the requirements and methods of sampling and test for women’s panty liners.

**2 REFERENCES**

The following referenced documents are indispensable for the application of the document. For undated references, the latest version of the referenced document (including any amendments) shall apply.

SLS ASTM	D 1777	Standard test method for thickness of textile materials
SLS	16	Standard atmospheres for conditioning and testing of textiles
SLS	86	Determination of pH value of aqueous extracts of textile materials
SLS	102	Rules for rounding of numerical values
SLS	428	Random sampling methods

SLS	1350	Method of test for the detection of <i>Pseudomonas aeruginosa</i> in cosmetics
SLS	1351	Method of test for the detection of <i>Staphylococcus aureus</i> in cosmetics
SLS	1488	Method of test for the detection of <i>Candida albicans</i> in cosmetics
SLS ISO	11737	Sterilization of health care products — Microbiological methods Part 1 - Determination of a population of microorganisms on products
SLS ISO	22716	Guidelines on good manufacturing practices for cosmetics

### 3 DEFINITIONS

**3.1 absorbent core:** The filler material of the panty liner, which absorbs and retain the menstrual blood, vaginal discharge and urine

**3.2 back sheet:** The protective barrier of the panty liner, which prevents leakages

**3.3 menstruation:** The regular discharge of blood and mucosal tissue (known as menses) from the inner lining of the uterus through the vagina

**3.4 menstrual cup:** A feminine hygiene device that is inserted into the vagina during menstruation

**3.5 panty liner:** An absorbent piece of material used to improve women’s perineal hygiene designed to absorb a discharge, such as daily vaginal discharge, light menstrual flow, tampon and menstrual cup backup, spotting, post-intercourse discharge, and moderate urinary incontinence

**3.6 releasing paper:** A strip of paper which covers the glue lines in the back sheet of a panty liner

**3.7 single-use:** A device designed, tested, manufactured, labelled and intended for one-time use only and then disposed of

**3.8 super absorbent polymer (SAP):** A polymer that can absorb and retain an extremely large amount of liquid relative to its mass

**3.9 top sheet:** The surface covering material of the panty liner, which is in direct contact with the skin

**3.10 urinary incontinence:** Also known as involuntary urination, is any uncontrolled leakage of urine

**3.11 vulva:** genitalia that surround the opening to the vagina; collectively these consist of the labia majora, the labia minora, clitoris, vestibule of the vagina, bulb of the vestibule and glands of Bartholin. All of these organs are located in front of the anus and below the mons pubis

## 4 REQUIREMENTS

### 4.1 General requirements

**4.1.1** Panty liners shall be manufactured by a process adhering to Good Manufacturing Practices (GMP) complying with the requirements imposed by the relevant regulatory authorities in Sri Lanka.

**4.1.2** Panty liners shall not contain any toxic, irritant or carcinogenic material.

**4.1.3** Any therapeutic or prophylactic functions claimed shall be clinically proven.

**4.1.4** Panty liners shall be free from defects which affect the appearance and utility.

**4.1.5** Panty liners shall be free from any unpleasant odour.

#### NOTE

*Panty liners may be manufactured with or without wings and of different designs according to the undergarment type*

### 4.2 Raw materials

**4.2.1** All raw materials shall be dermatologically safe.

**4.2.2** Self-declaration regarding the safety of the raw materials and or product shall be submitted by the manufacturer when requested by regulators.

### 4.3 Performance requirements

**4.3.1** Panty liners shall comply with the requirements specified in Table 1 when tested according to the relevant methods given in Column (4) of the table.

**Table 1 – Requirements for panty liner**

SI No (1)	Characteristic (2)	Requirement (3)	Test method (4)
i)	pH	6.0 – 8.0	<b>SLS 86</b> (see note 1)
ii)	Absorbency, ml, min	5	<b>Appendix B</b>
iii)	Ash content, per cent, max.	0.6	<b>Appendix C</b> (See note 2)
iv)	Water soluble extract, per cent, max.	1.0	<b>Appendix D</b> (See note 2)
v)	Microbiological limits		

	a) Aerobic plate count, per g, max	100	} <b>SLS ISO 11737 - 1</b>
	b) Yeasts or Moulds count, per g, max	100	
	c) <i>Pseudomonas aeruginosa</i> , per liner	Absent	<b>SLS 1350</b>
	d) <i>Staphylococcus aureus</i> , per liner	Absent	<b>SLS 1351</b>
	e) <i>Candida albicans</i> , per liner	Absent	<b>SLS1488</b>
vi)	Moisture content, per cent, max.	10	<b>Appendix E</b>
vii)	Thickness, mm, max	2.5	<b>SLS ASTM D1777</b>

## NOTES

- 1) *pH test shall be performed separately on both the top sheet and the absorbent filler*
- 2) *Ash content and water soluble extract tests are not applicable for the panty liners which contain SAP.*

## 4.4 Design, workmanship and finish

**4.4.1** The effective length and effective width of the product should be such that it covers the vulva in a manner that will ensure that the performance requirements in **4.3** are met.

**4.4.2** Dimensions of the panty liner shall be clearly labelled on the retail pack in accordance with Appendix F.

**4.4.3** The components of the panty liner shall be in accordance with the requirements given in Table 2. Refer Appendix G.

**4.4.4** Any other components additional to the table 2 may be introduced to enhance the performance without altering the requirements as in clause **4.3.1**

**Table 2 – Requirements of the major components of a panty liner**

SI No. (1)	Component (2)	Requirement (3)
i)	Top sheet	
	I. Material	<ol style="list-style-type: none"> <li>a) The top sheet shall be of wadding, tissue, knitted sleeve, gauze or non-woven fabric with sufficient porosity to permit the panty liner to meet the absorbency requirement.</li> <li>b) The top sheet shall transfer the discharge from the lower body immediately to the absorbent core.</li> </ol>
	II. Workmanship	<ol style="list-style-type: none"> <li>a) The top sheet shall cover the upper side of the absorbent core completely.</li> <li>b) The top sheet shall be sealed or secured in such a manner that it prevents unwrapping during usage.</li> </ol>
ii)	Absorbent core	

	I. Material	a) The absorbent core material can be a fluffed pulp, cotton, cellulose wadding, tissue and any other suitable material with or without SAP.
	II. Workmanship	a) The absorbent core shall be arranged and neatly cut to the required size of the panty liner without any wrinkles or distortion. b) The absorbent core material shall be placed in the covering in such a way that it does not cause lump formation when subject to a sudden pressure. c) The absorbent core shall be free from lumps, oil spots, dirt or foreign matter.
iii)	Back sheet	
	I. Material	a) The back sheet of the panty liner shall be of any suitable leak-proof material.
	II. Workmanship	a) The back sheet shall cover the lower side of the absorbent core completely. b) The back sheet shall be sealed or secured in such a manner that it prevents unwrapping during usage.
iv)	Adhesive glue strips	
	I. Material	a) The adhesive glue strips shall neither snap back during attaching nor debond during usage.
	II. Workmanship	a) The amount of adhesive material applied shall be adequate to hold the panty liner in place securely but not excessive so as to damage the used panty liner during removal. b) The adhesive glue strip/ strips shall be placed in such a manner so as to adequately secure the panty liner to the under garment.
v)	Releasing paper	
	I. Material	a) The releasing paper shall be strong enough to withstand a sudden releasing force without tearing and shall release easily. (see note)
	II. Workmanship	a) The releasing paper shall completely cover the adhesive areas of the back sheet of the panty liner.
vi)	Wings (Optional)	
	I. Material	a) The properties of the materials shall be in accordance with Sl. no i) and ii) of this table.



	<b>II. Workmanship</b>	a) The design of the wings shall be sufficient to wrap around the sides of the gusset to add additional leakage protection and to hold the panty liner in place without causing any crumpling during usage.
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**NOTE:**

*The manufacturer may use a suitable material for the cover, which prevents the use of a separate releasing paper*

**5 PACKAGING**

**5.1** Each panty liner shall be wrapped individually, then packed in multiples (retail pack), and then packed in a carton lined with waterproof material or bags having similar waterproof properties (master pack).

**5.2** The number of retail packs in a carton/ bag (master pack) shall be as agreed between the purchaser and the supplier.

**5.3** The packaging materials shall be sufficiently robust and of suitable waterproof material to withstand transportation, handling and storage.

**5.4** The packaging materials shall be in accordance with regulations promulgated in terms of the National Environmental Act. 47 of 1980, as amended.

**6 MARKING AND/ OR LABELLING**

**6.1** The following information shall be legibly and indelibly marked and/ or labelled on each master pack: (see note 1)

- a) Name of the product as “PANTY LINERS”/ “PANTY LINERS (Absorbing Aids)”;
- b) Type (with or without wings, any specific design or features – *see note in 4.1*)
- c) Country of origin; (see note 2)
- d) Name and address of the manufacturer and importer/ distributor if any;
- e) Brand name, if any;
- f) Number of retail packs;
- g) Batch or code number;
- h) Date of manufacture; and
- j) Date of expiry or shelf life. (see note 3)

**6.2** The following information shall be legibly and indelibly marked and/ or labelled on each retail pack: (see note 1)

- a) Name of the product as “PANTY LINERS”/ “PANTY LINERS (Absorbing Aids)”;
- b) Type (with or without wings, any specific design or features – *see note in 4.1*)

- c) Country of origin;(see note 2)
- d) Name and address of the manufacturer and importer/ distributor if any;
- e) Registered trade mark, if any;
- f) Brand name, if any;
- g) Number of panty liners;
- h) Dimensions of the panty liner;
- j) Instructions as follows:
  - i) Method of use;
  - ii) Indication of the absorbent side;
  - iii) Suggestions for disposal;
- k) Batch or code number;
- m) Date of manufacture;
- n) Date of expiry/ shelf life; (see note 3)
- p) List of raw materials; and
- q) Bar code and/ or QR code.

## NOTES

1. *Minimum letter size used in the label shall be 1.5 mm.*
2. *Shall indicate country of origin legibly, permanently, and in comparable size and close proximity to any mention of country other than country in which the article was manufactured or produced. Must be visible at point of purchase.*
3. *Claims regarding shelf life should be accompanied by scientific evidence.*

## 7 METHODS OF TEST

**7.1** Tests shall be carried out as specified in **SLS ASTM D1777, SLS 86, SLS 1350, SLS 1351, SLS 1488, SLS ISO 11737 – 1** and Appendices **B to G** of this Standard.

**7.2** The conditioning and testing atmosphere shall be the standard atmosphere for conditioning and testing of textiles as defined in **SLS 16**.

**7.3** During analysis, unless otherwise stated, use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

## APPENDIX A COMPLIANCE OF A LOT

The sampling scheme given in Appendix A shall be applied where compliance of a lot to the requirements of this Standard is to be assessed based on statistical sampling and inspection.

Where compliance with this Standard is to be assured based on manufacturer's control systems coupled with type testing and check tests or any other procedure, appropriate schemes of sampling and inspection should be adopted.

### A.1 LOT

**A.1.1** In any consignment, all retail packs of single-use panty liners of the same dimension belonging to one batch of manufacture or supply shall constitute a lot.

### A.2 SCALE OF SAMPLING

**A.2.1** The samples shall be inspected and tested from each lot for ascertaining conformity of the lot to the requirements of this specification.

**A.2.2** The number of master packs to be selected as the primary sample shall be in accordance with Column (1) and Column (2) of Table 3.

**A.2.3** Unopened retail pack/s (comprising minimum of ten single-use panty liners) shall be selected at random from a lot for the microbiological test requirements.

**A.2.4** The number of retail packs to be selected as the secondary sample shall be in accordance with Column (1) and Column (3) of Table 3.

**Table 3 – Scale of sampling**

No. of retail packs in the lot  (1)	No. of master packs to be selected for primary sample  (2)	No. of retail packs to be selected for secondary sample  (3)	No. of single-use panty liners to be selected for sub sample  (4)
Up to 3 200	5	8	13
3 201 to 35 000	5	8	20
35 001 to 500 000	8	13	32
500 001 and above	8	13	50

**A.2.5** A minimum of one retail pack shall be taken from each master pack to form a secondary sample of respective size as given in Table 3.

**A.2.6** The number of single-use panty liners to be selected as the sub sample from the secondary sample selected as in **A.2.4** and **A.2.5** shall be in accordance with Column **(1)** and Column **(4)** of Table **3**.

**A.2.7** The master packs and retail packs shall be selected at random. In order to ensure randomness of selection, random number tables as given in **SLS 428** shall be used.

### **A.3 NUMBER OF TESTS**

**A.3.1** Each master pack selected as in **A.2.2** shall be inspected for packaging and marking requirements specified in Clauses **5** and **6.1**.

**A.3.2** Each retail pack selected as in **A.2.4** and **A.2.5** shall be inspected for packaging and marking requirements specified in Clauses **5** and **6.2**.

**A.3.3** Each single-use panty liner selected as in **A.2.6** shall be tested for the requirements specified in Clause **4.4.3** (design, workmanship & finish).

**A.3.4** Each single-use panty liner selected as in **A.2.6** shall be tested for the requirements of specified in Clause **4.4.2** (effective length and width).

**A.3.5** Each single-use panty liner selected as in **A.2.6** shall be tested for the requirements of Sl. no. vii (thickness) specified in Table **1** of Clause **4.3.1**.

**A.3.6** Five single-use panty liners selected as in **A.2.6** shall be tested for the requirements of Sl. no. ii (absorbency) specified in Table **1** of Clause **4.3.1**.

**A.3.7** Composite specimens extracted from the retail packs in secondary sample selected as in **A.2.4** and **A.2.5** shall be tested for the requirements of Sl. no. **i** (pH), Sl. no. **iii** (ash content), Sl. no. **iv** (water soluble extract) and Sl. no. **vi** (moisture content) specified in Table **1** of Clause **4.3.1**.

**A.3.8** Composite specimens chosen from the retail packs selected as in **A.2.3** shall be tested for the microbiological requirements of Sl. no. **v** specified in Table **1** of Clause **4.3.1**.

### **A.4 CRITERIA FOR CONFORMITY**

A lot shall be declared as conforming to the requirements of this specification if the following conditions are satisfied.

**A.4.1** Each master pack examined as in **A.3.1** shall satisfy the relevant and applicable requirements.

**A.4.2** Each retail pack examined as in **A.3.2** shall satisfy the relevant and applicable requirements.

**A.4.3** Each single-use panty liner examined as in **A.3.3**, **A.3.4**, **A.3.5** and **A.3.6** shall satisfy the relevant and applicable requirements.

**A.4.4** Composite specimens examined as in **A.3.7** shall satisfy the relevant and applicable requirements.

**A.4.5** Composite specimens tested as in **A.3.8** shall satisfy the relevant and applicable requirements.

## **APPENDIX B DETERMINATION OF ABSORBENCY**

### **B.1 APPARATUS AND REAGENTS**

**B.1.1** *Beaker, capacity 1- litre*

**B.1.2** *Burette, capacity 10.00- ml*

**B.1.3** *Glass or any other transparent sheet*

**B.1.4** *Weight piece with template –Mass of weight piece with template to be 1 kg.  
Size of the template - 175 mm x 60 mm*

**B.1.5** *Stop watch*

**B.1.6** *Sieve, 45 microns (mesh no 200)*

**B.1.7** *Viscometer*

**B.1.8** *Methyl paraben*

**B.1.9** *Gum arabic or gum acacia*

**B.1.10** *Methylene blue*

**B.1.11** *Glycerin*

### **B.2 PREPARATION OF TEST FLUID**

**B.2.1** Add about 650 ml of boiling water and 0.4 g of methyl paraben into a 1-liter capacity beaker and stir until dissolved. Add 80 g of the gum arabic or gum acacia and stir until it is dissolved completely. Make up to about 870 ml with water and allow the solution to stand for at least 24 hours. Filter through a sieve of 45 microns (mesh no 200). To the filtrate, add 1.0 g of methylene blue, 160 ml of glycerin and 90 ml of water and mix. The final volume shall be approximately 1 litre.

**B.2.2** Mix thoroughly and allow to stand for at least 24 hours again. Viscosity of the test fluid shall be 5 - 6 millipascal second (5 - 6 centipoise). Shake before use.

**NOTE**

*Viscosity of the final solution may be adjusted by adding water, glycerin or gum arabic as required*

**B.3 SAMPLE PREPARATION**

**B.3.1** Randomly select five panty liners from the retail packs selected according to the scale of sampling.

**B.3.2** Condition the selected samples at the standard atmospheres for testing textiles as specified in SLS 16.

**B.4 PROCEDURE**

**B.4.1** Lay the panty liner on a flat, leveled, transparent surface, so that the underside of the panty liner can be observed. Drip 5 ml of the test fluid at the rate of 1 ml per minute on to the centre of the panty liner from a height of 2 mm to 3 mm. Allow two minutes for the panty liner to absorb the fluid, or for the fluid to disappear from the surface. Then keep the weight piece with the appropriate template on the panty liner for one minute. Remove the template and the weight piece.

**B.4.2** Observe the underside and sides of the panty liner for any leakage of test fluid. If there is any leakage of test fluid, the sample is considered unsatisfactory.

**B.4.3** If the panty liner has not absorbed the test fluid within two minutes, the sample is considered unsatisfactory.

**APPENDIX C  
DETERMINATION OF ASH CONTENT**

**C.1 APPARATUS AND REAGENTS**

**C.1.1** *Crucible, silica or platinum*

**C.1.2** *Muffle furnace, capable of maintaining at  $600 \pm 20$  °C*

**C.1.3** *Electric hotplate or surface heater*

**C.1.4** *Desiccator, provided with an efficient desiccant*

**C.1.5** *Analytical balance, capable of weighing to the nearest 0.000 1 g*

## C.2 SAMPLE PREPARATION

C.2.1 Weigh and record the weight of a single panty liner to the nearest 0.1 g.

C.2.2 Randomly select an approximate number of panty liners (according to C.2.1) in order to prepare two homogeneous samples of 5 g weight ( $m_2$ ) each.

C.2.3 Disintegrate or cut the filling materials of the selected panty liners into small pieces and mix them well. Prepare the two homogeneous samples.

## C.3 PROCEDURE

C.3.1 Transfer the prepared homogeneous sample (C.2.2) into a crucible of known mass ( $m_0$ ). Slowly heat the crucible on an electrical hot plate or under the surface heater until test portion has been carbonized. Transfer the crucible to an electrical muffle furnace set at  $600 \pm 20$  °C and heat for about two hours. Take the crucible out and cool in a desiccator and weigh to the nearest milligram ( $m_1$ ). Repeat the operation of heating, cooling and weighing until the difference between two successive weighing does not exceed 0.001 g. Calculate the ash content.

C.3.2 Repeat C.3.1 for the other sample prepared as in C.2.2

## C.4 CALCULATION

Calculate the ash content for the two samples separately as stated below.

$$\text{Ash content, per cent by mass} = \frac{m_1 - m_0}{m_2} \times 100$$

where,

$m_0$  is the mass, in grams, of the empty crucible;

$m_1$  is the mass, in grams, of the crucible with the ash; and

$m_2$  is the mass, in grams, of the test portion.

## C.5 REPORT

Report the average ash content of the two samples to the nearest 0.1%

## APPENDIX D DETERMINATION OF WATER SOLUBLE EXTRACT

### D.1 APPARATUS AND REAGENTS

D.1.1 *Analytical balance, capable of weighing to the nearest 0.001 g*

D.1.2 *Measuring cylinder, capacity 300 ml*

**D.1.3** *Desiccator*

**D.1.4** *Oven, capable of maintaining at  $105 \pm 2$  °C*

**D.1.5** *Beaker, 500 ml*

**D.1.6** *Evaporating dish*

**D.1.7** *Round bottomed flask, capacity 500 ml*

**D.1.8** *Steam bath*

## **D.2 SAMPLE PREPARATION**

**D.2.1** Weigh and record the weight of a single panty liner to the nearest 0.1 g.

**D.2.2** Randomly select an approximate number of panty liners (according to **D.2.1**) in order to prepare two homogeneous samples of 5 g weight ( $m_2$ ) each.

**D.2.3** Condition the selected panty liners at the standard atmospheres for testing textiles as specified in **SLS 16**.

**D.2.4** Disintegrate or cut the filling materials of the selected panty liners into small pieces and mix them well. Prepare the two homogeneous samples.

## **D.3 PROCEDURE**

**D.3.1** Transfer the prepared homogeneous sample (**D.2.3**) into a 500 ml round bottomed flask. Add 300 ml of water and reflux using a water condenser for half an hour. Cool the content of the flasks to the room temperature and decant the supernatant into a beaker. Extract the test specimen twice more using 100 ml each water and reflux for 15 minutes. Collect the supernatants into the same beaker accordingly and filter the contents of the beaker using a Whatman No 41 filter paper. Concentrate the filtrate to a small volume and transfer quantitatively to a previously dried and weighted dish ( $m_0$ ), by washing the beaker with a little amount of distilled water. Evaporate the excess water on a steam bath and dry in an air circulating oven at  $105 \pm 2$  °C for 2 hours. Cool the dish in a desiccator and weigh ( $m_1$ ). Heat again at  $105 \pm 2$  °C in the oven for 30 minutes. Cool and weigh. Repeat this process of heating, cooling and weighing at 30 minute intervals until the difference in mass between two successive weighing is less than 0.001 g.

**D.3.2** Repeat **D.3.1** for the other sample prepared as in **D.2.2**.

## **D.4 CALCULATION**

Calculate the water soluble extract for the two samples separately as stated below.



$$\text{Water soluble extract, per cent by mass} = \frac{m_1 - m_0}{m_2} \times 100$$

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; and
- $m_2$  is the mass, in grams, of the test portion.

## **D.5 REPORT**

Report the average water soluble extract of the two samples to the nearest 0.1%

## **APPENDIX E DETERMINATION OF MOISTURE CONTENT**

### **E.1 APPARATUS AND REAGENTS**

- E.1.1** *Oven capable of maintaining  $105 \pm 2$  °C*
- E.1.2** *Desiccator, provided with an efficient desiccant*
- E.1.3** *Balance, capable of weighing to the nearest 0.01 g*
- E.1.4** *Weighing containers/ bottles*

### **E.2 SAMPLE PREPARATION**

- E.2.1** Weigh and record the weight of a single panty liner to the nearest 0.1 g.
- E.2.2** Randomly select approximate number of panty liners (according to **E.2.1**) in order to prepare two homogeneous samples of 5 g weight each.
- E.2.3** Disintegrate or cut the filling materials of the selected panty liners into small pieces and mix them well. Prepare the two homogeneous samples.

### **E.3 PROCEDURE**

- E.3.1** Transfer the prepared homogenous sample (**E.2.2**), into a weighing bottle of previously dried and weighed ( $m_0$ ). Weigh it to the nearest 0.01 g ( $m_2$ ). Dry the sample in an oven at  $105 \pm 2$  °C for two hours. Transfer the bottle into a desiccator with the lid closed. Allow it to cool and weigh it to the nearest 0.01 g ( $m_1$ ).
- E.3.2** Repeat the operation of drying, cooling and weighing at 30 minutes intervals until the difference between two successive weighing does not exceed 0.01 g. Calculate the moisture content.
- E.3.3** Follow the same procedure **E.3.1** and **E.3.2** to the other sample prepared as in **E.2.2**

#### E.4 CALCULATION

Calculate the moisture content for the two samples separately as stated below.

$$\text{Moisture content, per cent by mass} = \frac{m_2 - m_1}{m_2 - m_0} \times 100$$

where,

- $m_0$  is the mass, in grams, of the empty bottle;
- $m_1$  is the mass, in grams, of the bottle with the sample after drying; and
- $m_2$  is the mass, in grams, of the bottle with the sample before drying.

#### E.5 REPORT

Report the average moisture content of the two samples to the nearest 0.1%.

### APPENDIX F MEASUREMENTS OF PANTY LINERS (Effective width and effective width)

#### F.1 APPARATUS

**F.1.1** *A flexible non-stretchable calibrated measurement tape or a calibrated steel ruler graduated in millimeters shall be used.*

#### F.2 SAMPLE PREPARATION

**F.2.1** Randomly select five panty liners from the retail packs selected according to the scale of sampling.

**F.2.2** Condition the selected samples at the standard atmospheres for testing textiles as specified in **SLS 16**.

#### F.3 PROCEDURE

**F.3.1** Lay down the panty liner on a clean, flat and even surface with any fasteners closed by placing it as flat and relaxed as possible. Remove the releasing paper and paste it on an even surface. For loop type sanitary towels use a proper mechanism to hold the towel flat without causing any crumpling. Identify the measuring points shown in the Figure 1 and measure in a straight line between two points without causing a pressure on the specimen.

**F.3.2** Repeat **F.3.1** to all the other selected panty liners as in **F.2.1**.

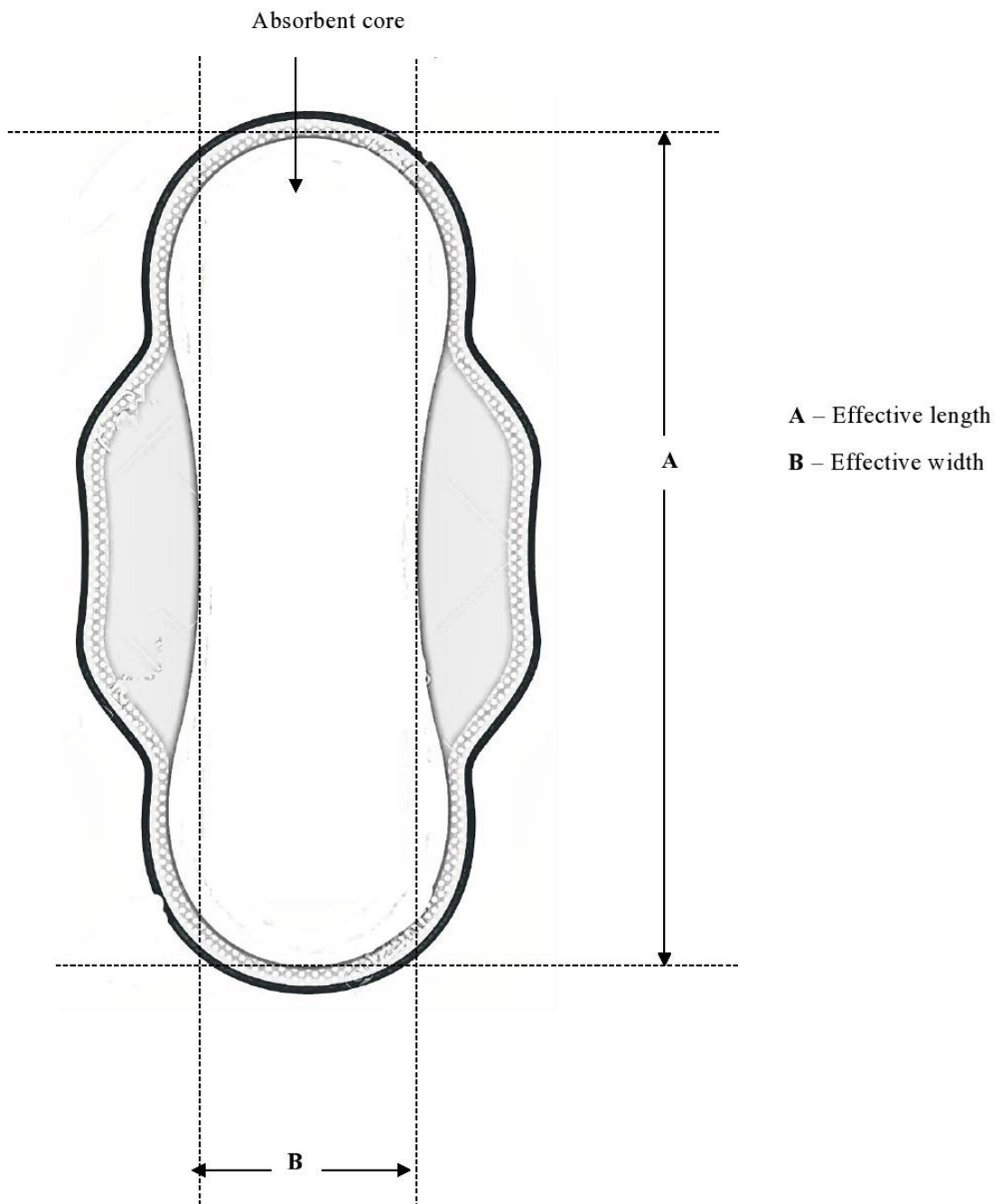
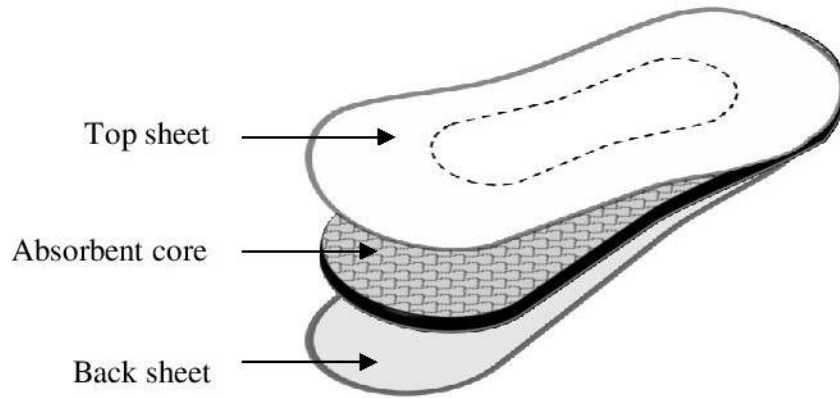
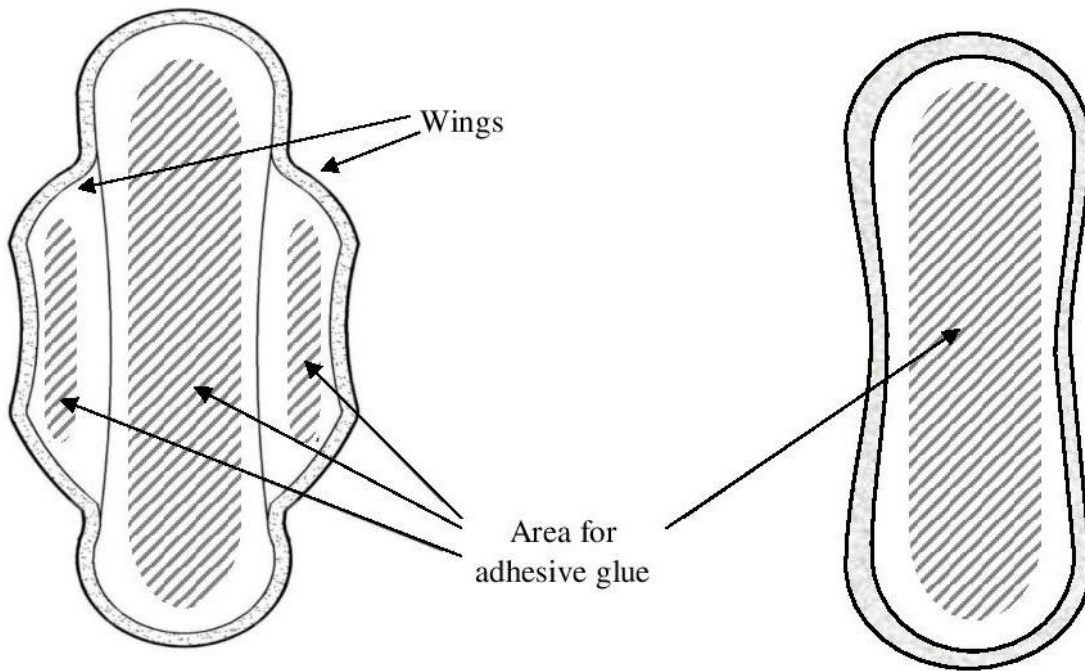


Figure 1 – Measurement points of a panty liner

**APPENDIX G  
DIAGRAMS OF PANTY LINERS**



**Figure 2** – Major components of a panty liner



**Figure 3(a)** – Press- on areas of the panty liner with wings

**Figure 3(b)** – Press- on areas of the panty liner without wings

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