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GUIDELINE FOR
NON-MEDICAL REUSABLE CLOTH FACE
MASKS

SRI LANKA STANDARDS INSTITUTION

Sri Lanka Standard
GUIDELINE FOR NON-MEDICAL REUSABLE CLOTH FACE MASKS

SLS 1675: 2020

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SRI LANKA STANDARDS INSTITUTION
17, Victoria Place
Elvitigala Mawatha
Colombo - 08
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Sri Lanka Standard
GUIDELINE FOR NON-MEDICAL REUSABLE CLOTH FACE MASKS

NATIONAL FOREWORD

This Standard was approved by the Special Committee for non-medical reusable cloth face mask and was authorized for adoption and publication as a Sri Lanka Standard by the Council of the Sri Lanka Standards Institution on 2020-07-22.

This guideline gives basic requirements for manufacture of non-medical reusable cloth face mask.

Since there is a need to implement this Sri Lanka Standard immediately, steps have been taken to publish it with the currently available information but this Guideline remains subject to amendments based on further comments in accordance with the good practices of Standardization.

This guideline is subject to the restrictions imposed under the applicable State Legislative requirements.

1. SCOPE

This guideline specifies the requirements for the design, materials manufacture, storage, performance and test methods for the non-medical, reusable cloth face mask, intended to be used by the community to reduce the risk of transmission of infectious agents from person to person while engaging in public or private activities.

This guideline neither applies to filtering half masks used as respiratory protective devices against particles and other specific airborne chemicals covered by **EN 149:2006+A1: 2009**, nor to medical face masks covered by **EN 14683+AC: 2019**.

WARNING

Use of the cloth face mask does not limit the spread of certain respiratory diseases unless other important protective measures such as physical distancing, proper hand hygiene, respiratory etiquette and disinfection of frequently touched surfaces are not adhered to.

2. REFERENCE

| | |
|---------------|--|
| SLS 1663 | Medical Masks - Requirements and Test Methods. |
| SLS ISO 22716 | Guidelines on good manufacturing practices for cosmetics |

3. TERMS AND DEFINITION

For the purposes of this document, the following definitions apply:

3.1 bacterial filtration efficiency (BFE): Efficiency of the face mask material(s) as a barrier to bacterial penetration

3.2 cloth face mask: A device made of cloth covering the mouth, nose and chin of the wearer providing a barrier to minimise the direct transmission of infectious agents.

3.3 differential pressure: Air permeability of the mask, measured by determining the difference of pressure across the mask under specific conditions of air flow, temperature and humidity. The differential pressure is an indicator of the “breathability” of the mask.

3.4 ear loop/ head strap: Device for holding the cloth face mask in place

3.5 infectious agent: Micro-organism that has been shown to cause infections or that might cause infections in another.

3.6 shelf life: The length of time that a commodity may be stored without becoming unfit for use, consumption, or sale.

3.7 usable life: Product lifetime refers to the useful life of a product; the time during which the product remains intact and usable for its primary function for which it was conceived and produced.

4. REQUIREMENTS

4.1 Design

4.1.1 The cloth face mask should have a means by which it can be fitted closely over the nose, mouth and chin of the wearer even when typical head movements occur.

4.1.1.1 The cloth face mask should ideally cover at least 50% of the length of the nose and extend about 25 mm under the chin.

4.1.1.2 The cloth face mask should cover the sides of the face sufficiently while ensuring comfort to the wearer.

4.1.2 The cloth face mask should not have any decorative elements or embellishments that would interfere with the functions of the cloth face mask.

4.1.3 The cloth face mask should not incorporate any exhalation and/or inhalation valve(s).

4.1.4 The cloth face mask should be made up of at least two layers of cloth.

4.1.5 The cloth face mask may be of type "Duckbill" or "Flat-Fold" or any other type meeting the requirements of this document.

4.1.6 The design of the cloth face mask should not obstruct the vision of the wearer.

4.1.7 The nose position, the top and outside of the cloth face mask must be clearly indicated by design or other means to ensure the correct way of putting it on.

4.1.8 In case, the design of the cloth face mask has any pleats, there should be a minimum of two pleats folding downwards and allowing sufficient opening of the structure.

4.2 Materials

4.2.1 The materials used should be able to withstand handling, washing and drying throughout the usable life of the cloth face mask.

4.2.2 The materials used should be free from any substances that are injurious to health.

4.2.3 The innermost layer of cloth face mask that touches the skin of the wearer should have hydrophilic properties to give sufficient comfort to the wearer.

4.2.4 The outermost layer should have hydrophobic properties which may limit external contamination of droplets from penetration through to the wearer's nose and mouth.

4.2.5 The middle layer/s, if any, should be of materials having properties to enhance the filtration efficiency.

4.2.6 The material/s used in the manufacture of the cloth face mask and the presence of any chemical finishes should be declared.

4.2.7 The fabric should not be coated with any compound/s that may decrease the breathability.

4.3 Performance

4.3.1 *Basic performance*

4.3.1.1 The cloth face mask is expected to act as a physical barrier to droplets typically more than 5 microns in size produced during talking, sneezing or coughing.

4.3.1.2 The cloth face masks should not cause difficulty in normal breathing.

4.3.1.3 Cleaning of the cloth face mask should be simple and easy and should be able to withstand repeated washing and drying without compromising the integrity of the product.

4.3.1.4 All components should maintain their integrity during the usable life of the product.

4.3.1.5 Ear loops or head ties should be securely attached and comfortable to wear.

4.3.1.6 The finish product should be free from objectionable visual defects.

4.3.2 Bacterial filtration efficiency (BEF)

Minimum performance in terms of bacterial filtration should be 80%, when tested in accordance with the test method specified Annex **B** of **EN 14683**.

4.3.3 Differential pressure

The differential pressure is an indicator of the “breathability” and should be less than 60 Pa/cm², when tested in accordance with the test method specified Annex **C** of **EN 14683**.

4.3.4 Washing/ Cleaning and drying

4.3.4.1 Machine or hand washing can be used for cleaning of cloth face mask as indicated by the manufacturer.

4.3.4.2 The cloth face mask should be completely dried (including all the layers) after washing, as indicated by the manufacturer.

4.4 Safety requirements

4.4.1 Hygienic conditions should be controlled in the manufacturing process and storage of raw materials and finished products to reduce the risk of contamination.

Note:

Reference to hygienic conditions SLS ISO 22716 for further guidance.

4.4.2 Parts of the cloth face mask that are in contact with the skin of the wearer should be free of sharp edges and blurs and should not present known risks of irritation.

5 PACKAGING AND MARKING

5.1 Packaging

5.1.1 The cloth face masks should be packed in multiples (retail pack) such that each cloth face mask can be removed without becoming entangled with another.

5.1.2 The number of cloth face masks containing in a package, should be as agreed between the Purchaser and the Supplier.

5.1.3 The packaging material shall be sufficiently robust and of suitable water proof material, to withstand transportation, handling and storage.

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

5.2 Marking

5.2.1 Master pack

Each package should be marked or labeled legibly and indelibly with the following information:

- a) Name of the product as “Non-medical Reusable cloth face masks”;
- b) Type of the head strap;
 Loop, ties or hook and loop
- c) Number of retail packs;
- d) Total number of masks (number of masks in a retail pack X number of retail packs);
- e) Name and address of the Manufacturer/ distributor;
- f) Manufacturing date;
- g) Expiry date;
- h) Batch number;
- j) Country of origin;
- k) Brand or trade name if any; and
- m) Storing conditions.

5.2.2 Retail pack

Each package should be marked legibly and indelibly with the following information:

- a) Name of the product as “Non-medical Reusable cloth face masks”;
- b) Type of the head strap;
 Loop, ties or hook and loop
- c) The terms “Keep in a dry and clean place”;
- d) Brand or trade name;
- e) Country of origin;
- f) Manufacture name and address;
- g) Manufacturing date;
- h) Lot number;
- j) Shelf life;
- k) Maximum retail price;
- m) Size;
- n) Number of masks;
- p) Number of layers;
- q) Material types in each layer;
- r) Finishes applied if any; and
- s) Number of washes and washing instructions.

ANNEX A

Guidelines for Fabric Selection (Informative)

A.1 Inner Layer (next to face)

- a) The main purpose of this layer is to provide a smooth, soft and pleasant feel against the skin of the wearer
- b) The fabric should not irritate the skin in any way or allow the build-up of moisture or excessive heat in between the skin and the cloth face mask.
- c) Avoid the use of water repellent fabric that inhibit the absorption of droplets. It must not wet easily or accumulate excessive moisture with breathing.
- d) The fabric should be breathable.
- e) This layer can be woven, knitted or made from a suitable fabric.

A.2 Middle Layer/s (optional filter layer)

- a) The primary function of this layer is to enhance the filtration.
- b) Filter fabric should not impede the air permeability of the cloth face mask.

A.3 Outer Layer (faces outwards)

- a) This layer can be woven, knitted or made from a suitable fabric.
- b) Hydrophobic or water repellent properties are recommended.
- c) The fabric should be breathable.

ANNEX B

Guideline for making a cloth face mask (Informative)

B.1 General

The dimensions and shape of the pieces of the single layer or multi-layer composite shall be designed such that on completion of assembly with the head strap (and if applicable the nose piece), the cloth face mask can be adjusted to the user's morphology.

Assembly of the pieces can be done by ultrasonic welding or by stitching.

At the time of making, the hygiene conditions shall be controlled such as to reduce risks of contamination. The hygiene conditions are at the manufacturer's discretion (**SLS ISO 22716:2017**).

Making shall be followed by cleaning of the cloth face masks before packaging and before use. An example of a "duckbill" type cloth face mask is given in **B.2**. An example of a "flat-fold" cloth face mask is given in **B.3**.

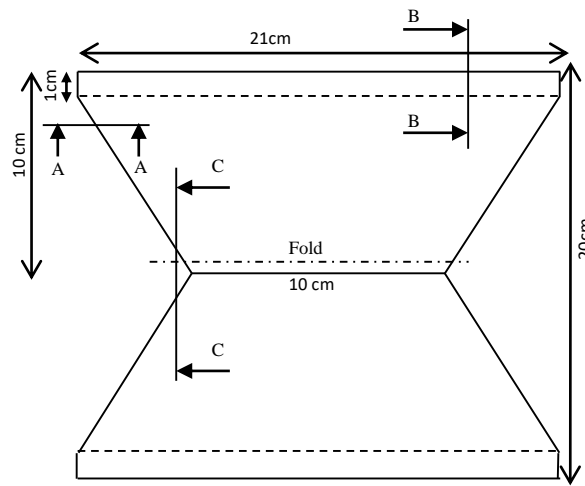
B.2 “Duckbill” type cloth face mask

B.2.1 Dimension

B.2.1.1 Single layer or multi-layer composite

It is recommended to use the following sizing for the single layer or multi-layer composite of the “duckbill” type cloth face mask: The dimensions given are indicative and at the discretion of the manufacturer or as agreed between the buyer and the seller.

Figure 1 — Duckbill - Sizing for the single layer or multi-layer composite



B.2.1.2 Head strap

It is recommended to use the following sizing for the head strap of the “duckbill” type cloth face mask:

The dimensions given are indicative and at the discretion of the manufacturer or as agreed between the buyer and the seller.

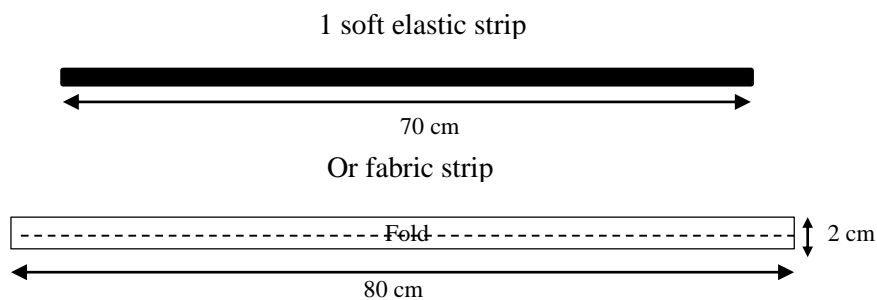
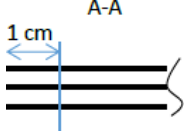
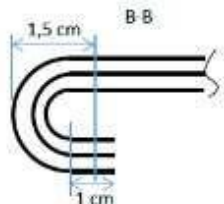
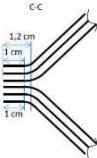


Figure 2 — Duckbill - Sizing of head strap

B.2.2 Procedure

To make a “duckbill” type cloth face mask, it is recommended to follow the following steps.

| | | Necessary equipment | |
|----|--|---|---|
| a) | Prepare the single layer piece or multi-layer composite pieces as shown in section B.2.1.1 ; | Industrial: Cutting table Artisanal (or DIY): Scissors | |
| b) | Make up, if applicable, the multi-layer composite; | | |
| c) | Edge stitch (pre-stitch) all around the piece 1 cm from the edges; |  | Industrial: stitch 301 or 401 or 504 Artisanal: flatbed sewing machine, straight or zigzag stitch |
| d) | Hem the 2 long edges, so that the hem is on the inside; |  | Industrial: stitch 301 or 401 Artisanal: flatbed sewing machine, straight stitch |
| e) | Fold along the fold line, right sides together (outer fabric surface against outer fabric surface) and stitch the edges. Turn; |  | Industrial: stitch 301 or 401 or 504 Artisanal: flatbed sewing machine, straight stitch |
| f) | Prepare a head strap (two soft elastic strips or two fabric strips) as indicated in section B.2.1.2 . | | |
| g) | Assemble the head strap on the masks; | <p>On the mask, turn down the point formed at point D (see pattern) to the inside of the mask. Thread the elastic strip under the point. Fix the point in position by sewing it down (parallel to the elastic strip) or by welding it. Repeat this operation with the other point formed at point D' (see pattern). Assemble (or knot) the 2 ends of the elastic strip. Fixed in this way, the elastic strip can slide.</p> | Industrial: ultrasonic (continuous system of electrode wheel type) stitch 301 Artisanal: flatbed sewing machine, straight stitch |

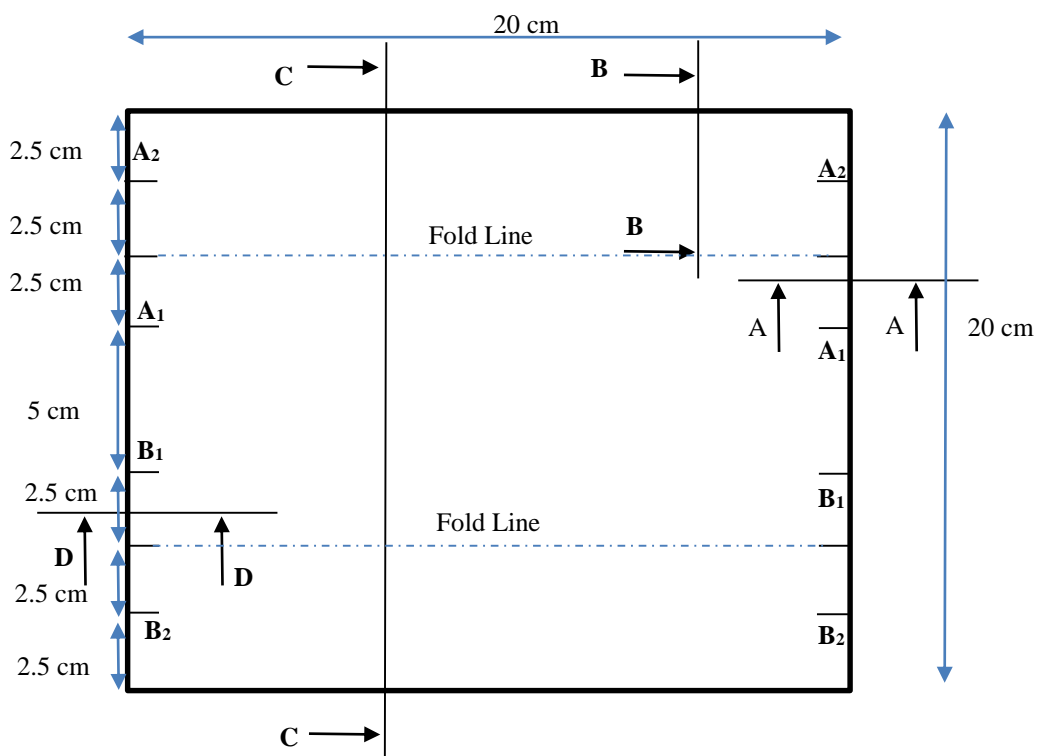
B.3 “Flat-fold” cloth face mask

B.3.1 Dimension

B.3.1.1 Single layer or multi-layer composite

It is recommended to use the following sizing for the single layer or multi-layer composite of the “flat-fold” cloth face mask: The dimensions given are indicative and at the discretion of the manufacturer or as agreed between the buyer and the seller.

Figure 3 — Flat-fold - Dimension of the single layer or multi-layer composite making of the fabric mask can also be performed using pattern-making of different pieces assembled by seaming.



B.3.1.2 Head strap

It is recommended to use the following sizing for the head strap of the “flat-fold” cloth face mask:

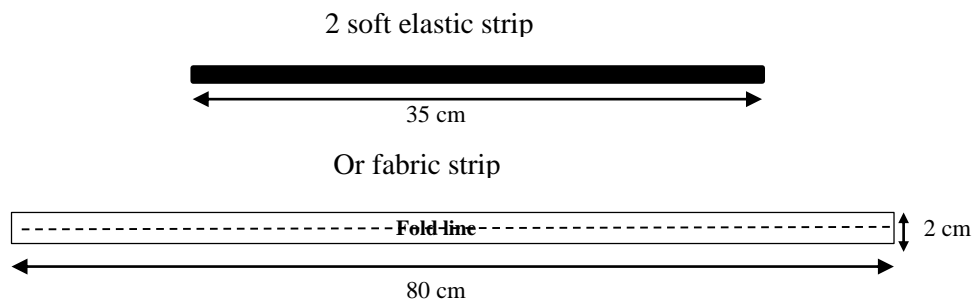
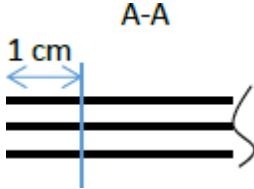
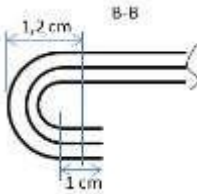
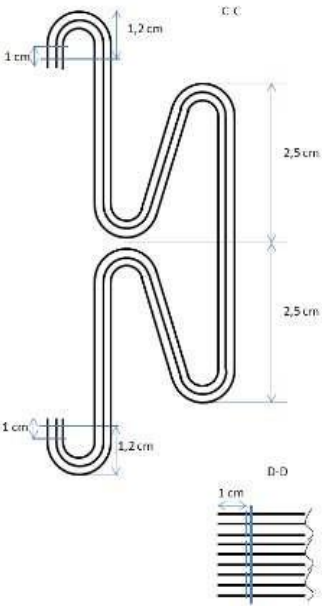


Figure 4 — Flat-fold - Sizing of the head strap

B.3.2 Procedure

To make a “flat-fold” cloth face mask, it is recommended to follow the following steps.

| | | Necessary equipment |
|----|--|---|
| a) | Prepare the single layer piece or multi-layer composite pieces as described in section B.3.1.1 ; | Industrial: Cutting table Artisanal (or DIY): Scissors |
| b) | Make up, if applicable, the multi-layer composite; | |
| c) | Edge stitch (pre-stitch) all around the piece 1 cm from the edges; | Industrial: stitch 301 or 401 or 504 Artisanal: flatbed sewing machine, straight or zigzag stitch |
| |  | |
| d) | Hem the top and bottom of the cloth face mask turning in a 1.2 cm hem; | Industrial: stitch 301 or 401 Artisanal: flatbed sewing machine, straight stitch |
| |  | |
| e) | Stitch the pleats folding A1 onto A2 then B1 onto B2 for the first edge; | Industrial: stitch 301 or 401 Artisanal: flatbed sewing machine, straight stitch |
| f) | Stitch the pleats folding A1 onto A2 then B1 onto B2 for the second edge; | |
| |  | |
| g) | Prepare a head strap (two soft elastic strips or two fabric strips) as indicated in section B.3.1.2 . | |
| g) | Assemble the head strap on the masks; | Industrial: ultrasonic (continuous system of electrode wheel type) stitch 301 Artisanal: flatbed sewing machine, straight stitch |
| | On the mask, turn down the point formed at point D (see pattern) to the inside of the mask. Thread the elastic strip under the point. Fix the point in position by sewing it down (parallel to the elastic strip) or by welding it. Repeat this operation with the other point formed at point D' (see pattern). Assemble (or knot) the 2 ends of the elastic strip. Fixed in this way, the elastic strip can slide. | |

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