



DRAFT TANZANIA STANDARD

Textiles – Reusable fabric face masks – Specification

TANZANIA BUREAU OF STANDARDS

FOREWORD

This Draft Tanzania Standard is being developed by the Hospital Textiles Technical Committee under supervision of the Textile and Leather Divisional Standards Committee and it is in accordance with the procedures of the Bureau.

In the preparation of this standard assistance has been obtained from the following standards:

TZS 2005: 2017 Textiles – Dust mask — Specification

KPAS 2917:2020 Reusable cloth mask — Specification

In reporting the result of a test or analysis made in accordance with this Draft Tanzania Standard if the final value, calculated or observed is to be rounded off, it shall be done in accordance with TZS 4 *Rounding off numerical values*.

Draft for Stakeholders' comments only

1. SCOPE

This Draft Tanzania Standard specifies performance requirements, sampling and test methods for reusable fabric face masks for general public use.

2. NORMATIVE REFERENCE

For the purpose of this Draft Tanzania Standard, the following references shall apply. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies:

TZS 21, Textiles – Woven or knitted fabrics – Determination of mass per unit length and per unit area.

TZS 24, Textiles — Test for colour fastness to washing with soap or soap and soda.

TZS 137, Textiles - Woven, knitted fabrics and garments - Determination of dimensional change - Machine method.

TZS 138, Textiles — Test for colour fastness to rubbing.

TZS 280, Textiles – Test for colour fastness – Colour fastness to perspiration.

TZS 327, Textiles – Binary fibre mixtures – Quantitative analysis.

BS EN 14683 Medical face masks – Requirements and test methods

3. TERMS AND DEFINITIONS

For the purpose of this Draft Tanzania Standard, the following definitions shall apply:

3.1 Face mask

device that you wear over your face to prevent yourself from breathing in and spreading germs in air.,

3.2 Coated fabrics

fabric that has been treated to make them longer lasting, stronger, and more weather resistant. The most common coating is polyethylene, other coatings include rubber and plastic resins, polyvinyl chloride, acrylic, paraffin, natural beeswax based wax etc.

4. REQUIREMENTS

4.1 General

4.1.1 Materials

Reusable fabric face mask shall be manufactured from cotton, poly-cotton or polypropylene fibre materials. Coated fabric materials shall not be used.

4.1.2 Dyes and pigments

For dyed or printed fabrics, dyes and pigments used shall not be carcinogenic.

4.1.3 Design and constructions

The reusable fabric face mask shall have three layers; the innermost layer, outermost layer and middle layer.

The reusable fabric face mask shall be designed in a way that it is comfortable to wear, fit closely over the nose, mouth and chin of the wearer and which ensures that the mask fits at the sides.

4.1.4 Workmanship

The reusable fabric face mask shall be free from defects that affect their appearance and serviceability, free from marks, holes, spots or stains incurred in the making up. The masks shall be manufactured under hygienic conditions.

4.2 Specific requirements

The reusable fabric face mask shall not disintegrate, split or tear during intended use and shall be made of three layer fabrics.

The reusable fabric face mask shall conform to the requirements specified in Table 1 below:

Table 1 – Requirements for reusable fabric face mask.

S/N	Characteristics	Requirements	Test Method
1.	Fibre composition		TZS 327
	a) Inner most layer	100% Cotton	
	b) Outer most layer	Blend of cotton and polyester	
	c) Middle layer	Polypropylene, polyester or their blend.	
2.	Differential pressure (breathability), Pa, max.	100	Annex A
3.	Bacterial filtration efficiency, %, min	70	TDC 9 (6787)
4.	Microbial cleanness, cfu/g, max	30	BS EN 14683
5.	Dimensional change, %, Max		TZS 137
	i) After five normal washings	3	
	ii) After three dry washings	2	
6.	Colour fastness:		TZS 24
	a) To washing , min	4	
	b) To rubbing, min		TZS 138
	i) Wet	4	
	ii) Dry	4	
	c) To perspiration, min	4	TZS 280

5. PACKAGING AND LABELLING

5.1 Packaging

5.1.1 Primary package

The reusable fabric face mask shall be packed as single unit pack of appropriate material.

5.1.2 Secondary package

Single unit packs shall be packed in secondary package in agreement between the manufacturer and buyer

5.2 Labelling

For mass production, each piece of the reusable fabric face mask shall be legibly marked with the following information:

- a) Name of the product (i.e. reusable fabric face mask).
- b) Manufacturer's name, initials or trade-mark.
- c) Size of the mask (i.e. Small (S), Medium (M), Large (L) or Extra Large (XL))
- d) Month and year of manufacture
- e) Batch /lot number
- f) Number of pieces in a single package.
- g) The word 'Wash and dry before use'.

6 SAMPLING AND CRITERIA FOR CONFORMITY

6.1 Lot

All reusable fabric face mask of the same material and produced under similar conditions of manufacture shall constitute a lot.

6.2 The number of reusable fabric face mask to be selected at random from a lot shall be as follows:

Table 2 – Sampling plan

S/N	Lot size	Sample size
1.	Up to 25	3
2.	26 to 50	5
3.	51 to 150	8
4.	151 to 300	13
5.	301 to 500	20
6.	501 to 1000	32
7.	1001 and above	50

ANNEX A

(normative)

METHOD FOR DETERMINATION OF BREATHABILITY (DIFFERENTIAL PRESSURE)

A-1 PRINCIPLE

A device which measures the pressure differential required to draw air through a measured surface area at a constant air flow rate is used to measure the air exchange pressure of the reusable fabric face mask material, as shown in Fig.1. Water-filled manometers (M1 and M2) are used to measure the pressure differential. A flow meter is used for measurement of the air flow.

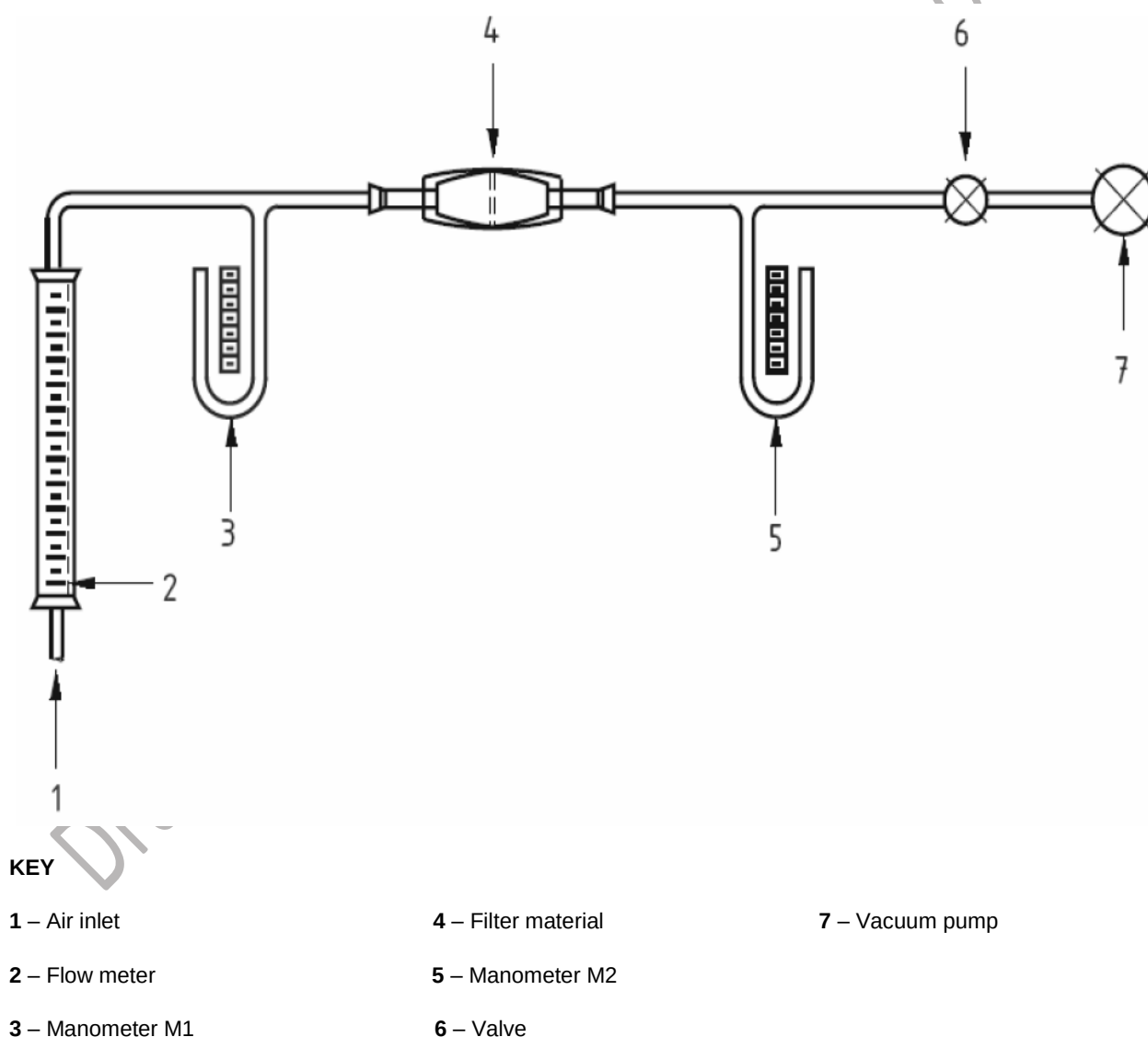


Figure 1 – Apparatus for measuring air resistance

An electric vacuum pump draws air through the apparatus and a needle valve is used to adjust the air flow rate.

A -2 APPARATUS

A -2.1 Flow Meter, capable of measuring an air flow of 8 litre/min.

A-2.2 Manometers, M1 and M2.

A-2.3 Electric Vacuum Pump

A-2.4 Valve

A-3 TEST SPECIMENS

Test specimens shall be complete masks or shall be cut from masks. Each specimen shall be able to provide five different circular test areas of 2.5 cm in diameter. The number of specimens that shall be tested shall be five.

A-4 PROCEDURE

A-4.1 The test specimen is placed across the 2.5 cm diameter orifice (total area 4.9 cm²) and clamped into place so that the tested area of the specimen will be in line and across the flow of air.

A-4.2 The pump is started and the flow of air adjusted to 8 litres/minute.

A-4.3 The manometers M1 and M2 are read and recorded.

A-4.4 The procedure described in steps **B-4.1** through **B-4.3** is carried out on five different areas of the mask and the readings averaged.

A-5 CALCULATION OF DIFFERENTIAL PRESSURE

For each test specimen, calculate the differential pressure, ΔP as follows:

$$\Delta P = (X_{m1} - X_{m2}) / 4.9$$

Where

X_{m1} = water pressure, in mm, manometer 1, mean of five test areas, low pressure side of the material;

X_{m2} = water pressure, in mm, manometer 2, mean of five test areas, high pressure side of the material;

4.9 = area of the test material, in cm²; and

ΔP = pressure differential per cm² of test material expressed as mm of water.

A-6 TEST REPORT

The test report shall include the following information:

- a) Flow rate during testing; and
- b) Differential pressure for each test specimen.

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ANNEX B

(Informative)

B-1 – Handling of the reusable fabric face mask.

Thoroughly wash and iron the mask before wearing it. Wash your hands thoroughly before wearing the mask. After four hours of use or as soon as the mask becomes wet or humid, switch to another mask and wash the used mask. Never reuse a mask after single use without washing it.

B-2 – How to remove the reusable fabric face mask.

Do not touch the front or any other surface of the mask, remove it using its strings from behind. Always untie the lower string below and then the upper string. After removal, store it in an appropriate container, immediately clean your hands with 60% alcohol based hand sanitizer or with soap and running water for 20 seconds. Soak it directly into a soap solution or boiling water to which salt has been added after every single use.

B-3 – How to wash the reusable fabric face mask after every single use.

- a) Thoroughly wash the mask in soap and warm water and leave it to dry in hot sun for at least 5 hours; if it is not a sunny day, follow option b:
- b) Place the mask in water in a pressure cooker and boil it for at least 10 minutes and leave it to dry. Adding salt to the water is recommended. In the absence of a pressure cooker, you may boil the fabric mask in hot water for 15 minutes; If you do not have access to a pressure cooker/boiling water, follow option c:
- c) Wash the fabric mask with clean water and soap and iron it for up to five minutes.

Bibliography

Recommended Guidelines Fabric Face Masks Manufactured by South Africa's Clothing and Textile Manufacturing Industry for General Public Use.

WHO Interim Guidance – Advice on the use of masks in the context of COVID-19.

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