

KENYA STANDARD

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First Edition

**Personal protective equipment — Face
masks — Masks for public use —
Specification**

KS 2924: 2020

TECHNICAL COMMITTEE REPRESENTATION

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Christian Health Association of Kenya (CHAK)
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Kenya Medical Supplies Agency (KEMSA)
Kenya National Chamber of Commerce and Industry (KNCCI)
Medtronics Kenya
Ministry of Health
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Personal protective equipment — Face masks — Masks for public use — Specification

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Foreword

This Kenya Standard was prepared by the Towels, Hygienic and Medical Textile Products Technical Committee under the guidance of the Standards Projects Committee, and it is in accordance with the procedures of the Kenya Bureau of Standards

Kenyan have expressed confusion on whether or not to wear face masks in the advent of the Covid-19 pandemic. Advice on the matter has been inconsistent, with health experts and the World Health Organization earlier advising that medical masks have to be left or preserved for medical frontline workers.

It is now clear that wearing a mask is crucial in protecting oneself from infecting others when appearing in public and in places where keeping social distance is a challenge. The Ministry of Health recently announced that wearing of masks shall be mandatory for all, signalling a major policy shift. This position has been also pinned by the effects of the second wave of the pandemic currently ravaging the country. The Kenya Association of Manufacturers, have equally corroborated wearing of masks in public making very strong cases on the use of woven material in the manufacturing of face masks.

Center for Disease Control (CDC), citing new data that shows high rates of transmission from people who are infected but show no symptoms, now advises that the earlier guidance on mask-wearing is “being critically re-reviewed to see if there’s potential additional value for individuals that are infected or individuals that may be asymptotically infected”.

These guidelines bring to the public domain a major tool in the war against the coronavirus that has been previously ignored, and which could prove a game changer in the coming days. The current standard, KS 2636:2016, Surgical masks — Specification, does not address the woven materials and other materials for use by the public inundating the development of this edition.

This standard cancels and replaces KPAS 2917:2020, Kenya Publicly Available Specification — Reusable cloth mask — Specification.

During the preparation of this standard, reference was made to the following documents:

KS 2636, Surgical masks – Specification.

BS EN 14683, Medical face masks – requirements and test methods.

ASTM F2100, Standard specification for performance of materials used in medical face masks.

Acknowledgement is made for the assistance received from these sources.

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Personal protective equipment — Face masks — Masks for public use — Specification

1 Scope

This Kenya Standard specifies the requirements and test methods for masks for general public use, which may be reusable, intended to reduce general transmission of infectious agents.

1.1 Application

This standard harmonizes the minimum requirements for devices that are alternative to the respiratory protective masks and surgical masks and provides support for makers of these potential makers of these masks.

This standard prescribes design and use recommendation for industrial serial manufacture that could be performed by non-specialists in design of masks for use by general use and also for artisanal making by people having necessary materials and competency.

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.

KS ISO 105-A02, *Textiles — Tests for colour fastness — Part A02: Grey scale for assessing change in colour*

KS ISO 6330: 2012, *Textiles — Domestic washing and drying procedures for textile testing*

KS ISO 11737-1, *Sterilization of medical devices — Microbiological methods — Part 1: Determination of a population of microorganisms on products*

KS ISO/TS 16876-2, *Respiratory protective devices — Human factors — Part 2: Anthropometrics*

KS ISO 22609, *Clothing for protection against infectious agents — Medical face masks — Test method for resistance against penetration by synthetic blood (fixed volume, horizontally projected)*

3 Terms and definitions

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

3.1

face mask

device covering the mouth and nose providing a barrier to minimize the direct transmission of infective agents between one infected person and another uninfected person

NOTE 1 to entry: Transmission of blood-borne agents from patients to staff may occur via splashes.

3.2

Bacterial Filtration Efficiency (BFE)

efficiency of the medical face mask material(s) as a barrier to bacterial penetration expressed as percentage

NOTE 1 to entry: The BFE test method is used to measure the bacterial filtration efficiency (BFE) of medical face mask materials.

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3.3 filter efficiency
the ability of the mask body to filter out particulate matter under specified conditions, expressed as percentage

3.4 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

Note 1 to entry: The differential pressure is an indicator of the "breathability" of the mask.

3.5 colony forming unit (cfu)
unit by which the culturable number of micro-organisms is expressed

NOTE 1 to entry: The culturable number is the number of micro-organisms, single cells or aggregates, able to form colonies on a solid nutrient medium.

3.6 cleanliness
freedom from unwanted foreign matter

NOTE 1 to entry: Such matter can be micro-organisms, organic residues or particulate matter.

3.7 infective agent
micro-organism that has been shown to cause surgical wound infections or that might cause infection in the patient, members of staff or other

3.8 particulate matter
refers to the particulate matters with air dynamics equivalent diameter less than or equal to 2.5 microns in the ambient air

3.9 aerosol
gaseous suspension of solid and/or liquid particles, the particles having a negligible falling velocity

NOTE 1 to entry: This velocity is generally considered to be less than 0.25 m/s.

3.10 filter
material used for mechanical and physical separation or deposition of aerosol particles (liquid or solid) from the inhaled and exhaled air

3.11 particle protective performance
The ability of the mask to block particulate matter under specified conditions, expressed as a percentage

3.12 general public
all people of the country except health care workers

4 Requirements

4.1 General requirements

The face mask for general public use shall not disintegrate, split or tear during intended use. In the selection of the filter and layer materials, attention shall be paid to cleanliness (absence of particulate matter).

4.1.1 Visual inspection

The visual inspection shall also include the marking and the information supplied by the manufacturer.

4.1.2 Materials

The materials used for manufacturing the face masks (face coverings) shall be able to withstand handling and wear throughout the lifetime of use, indicated by the producer.

The producer shall take into account the following when selecting material:

- a) Its breathability;
- b) The ability to absorb moisture to prevent condensation falling on to the user, i.e. hydrophilic or hydrophobic nature of the material in accordance with the requirement of World Health Organization (WHO);
- c) The adequacy of biocompatibility features of the materials which come into direct contact with the skin of the user.

These materials shall not be known to cause irritation, allergenic effects or, other toxic effects. The evaluation should be done through an analysis of Safety Material Data Sheet (SMDS) for materials used, colorants and finishes if applicable. This evaluation shall be the responsibility of the producer.

- For reusable face coverings, the materials used shall withstand the cleaning cycles, detergents and methods specified by the producer.

NOTE Recommendation for selection of materials for use in the manufacture of the face masks for general public use are provided in Annex E.

NOTE When selecting materials, the manufacturers shall take into account ability to be recycled or composed to ensure sustainability.

4.1.3 Cleaning and disinfecting

The face coverings specified as reusable shall withstand the number of cleaning cycles claimed by the producer (at least 5 cleaning cycles) with a minimum washing temperature of 60°C. The cleaning cycles shall follow either:

- a) the producer's detailed cleaning instructions; or
- b) the procedure described in KS ISO 6330.

For cleaning, only products which do not present any health risk, shall be used such as those that leave behind hazardous substances at the end of the cleaning process. For this reason it is recommended to use standard detergent and to not use fabric softener. If any damage to the face coverings is detected (tears, detachment of the head harness, less accurate fit, deformation, wear, etc.) after each cleaning cycle, the face coverings are deemed non-compliant.

NOTE The face coverings shall not be dry cleaned as this process leaves substances in the fabric which are hazardous to health.

4.1.4 Design

The face coverings for general public use shall have a means by which it can be fitted closely over the nose, mouth and chin of the wearer and which ensures that the coverings fits closely at the sides, nose piece and straps. Face masks shall not have nose valves.

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Face masks shall have different shapes and constructions as agreed between the manufacturer and the buyer.

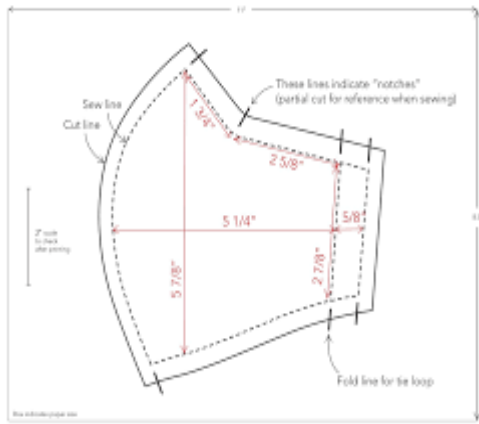


Figure 1 a)

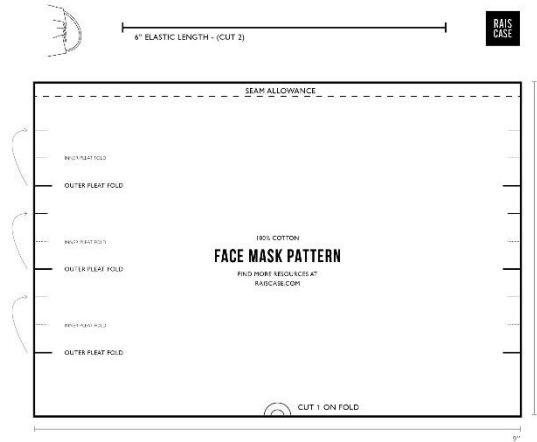


Figure 1 b)

Figure 1 — Illustration of typical face mask designs on the market

4.2 Basic requirements

- 4.2.1 The mask shall be able to cover mouth and nose safely and firmly.
- 4.2.2 The mask shall not be made from recycled materials and materials with high toxicity, carcinogenicity, or potentially carcinogenic. They shall also not be made of materials known to cause skin irritation or other adverse reactions. The residues of other restrictions on the material shall comply with the relevant requirements, no odour.
- 4.2.3 Face masks shall be tested in accordance to KS ISO 105-A02 to deter recycling.
- 4.2.4 Masks shall not have accessible sharp angle and edges, and shall not cause injury to the wearer.
- 4.2.5 Masks shall be easy to wear and to remove, have no obvious pressure or complications in the process of wearing, and shall not affect head movements.

4.3 Performance requirements

4.3.1 General

All tests shall be carried out on finished products or samples cut from finished products, if applicable in their sterile or unused state.

4.3.2 Elastic

The elastic material shall be synthetic elastomeric material of approximate width of 5 mm. The length shall be such that it fits comfortably around the head or ear of the wearer.

4.3.3 Nose piece (optional)

This, if used, shall be flexible strips of materials of 3 mm and shall enable the mask to take the shape around the nose of wearer.

4.3.5 Breathability – Inhalation resistance and exhalation resistance

When tested in accordance with Annex C, the differential pressure of the medical face mask shall conform to the value given in Table 1.

4.3.6 Filter efficiency

Masks shall have filter efficiency levels of 90 and 80 for salt and oil mediums respectively, when tested in accordance to Annex D.

Table 1 — Performance requirements for face mask for general public use

Test	Requirement
Decomposable carcinogenic aromatic amine dyes	Shall not be present
Filter Efficiency levels: (%)	
Salt medium	90
Oil medium	80
Breathability — Differential pressure (Pa/cm ²)	≤ 29.4
Breaking strength of mask band at the joint	≤20
Microbial cleanliness (bioburden)(cfu/g)	
Coliforms	Nil
Pathogenic purulent bacteria	Nil
Total fungal colonies	≤ 100
Total bacterial colonies	≤ 200
Ethylene oxide residues	≤10

4.3.7 Microbial cleanliness (bioburden)

When tested according to KS ISO 11737-1, the bioburden of the medical mask shall be as shown in Table 1.

4.4 Dimensions

The face masks for general public use shall be sized in a way as to correspond to the average morphology of the target Kenyan population. The proposed dimensions shall be based on KS ISO/TS 16876-2.

Dimensions and design for face masks for general public use shall be minimum 17.7 cm x 9.6 cm length by width for adults, and 15 cm x 8.9 cm length by width for children.

NOTE Any other size shall be as agreed between purchaser and manufacturer.

4.5 Instructions for use

In addition, the information provided by the producer in the instructions for use shall include at least the following elements:

- a) The cleaning instructions (washing and drying).
- b) For reusable community face coverings, the maximum number of cleaning cycles for which the community face covering is guaranteed to be compliant.

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- c) The warnings below, with the words "WARNING" in front of them:
- i) In order to use this community face covering correctly, it is important that you follow these instructions.
 - ii) If you are ill, this community face covering is unsuitable. Seek advice from your doctor.
 - iii) This community face covering is not a medical device within the meaning of (surgical masks) nor is it personal protective equipment in the sense of (respiratory protective devices).
 - iv) Always check that the community face covering is correctly fitted and covers your nose, mouth and chin. It is recommended that this community face covering be worn on bare skin; beards can reduce the filtration efficiency to below the limits set out.
 - v) If applicable: Community face coverings are not suitable for children under 3 years of age. It is recommended that children between 3 and 12 years are supervised while wearing the community face covering. A community face covering which hinders the user's ability to breathe when first put on is deemed unsuitable. It can take time to become comfortable with the community face covering.
 - vi) This community face covering does not replace protective measures (regular hand-washing, physical separation, reduced contact with other people). It minimizes the projection of user's respiratory droplets saliva into the environment.
 - vii) Do not use when participating in vigorous physical activity.
 - viii) Stop using this product at the first signs of damage.
 - ix) The community face covering specified as reusable should be washed before the first use unless recommended by producer.
 - x) Do not use dry cleaning and fabric softener.
 - xi) Clean the reusable community face covering after each use.
 - xii) The way how to fit, use, put on and removing.

4.6 Use of face coverings

4.6.1 General

The reusable face coverings do not exempt the user from application of the collective measures which are supplemented, where possible, by physical distancing measures, which are essential (regular handwashing, physical separation, reduced contact with other people). The reusable face coverings shall be used taking account of the compatibility of its use with the wearing of other equipment (goggles, headgear, headphones, etc.).

4.6.2 Reminder on essential protective measures even when wearing the community face coverings. The health instructions are given on the national government's web site.

5 Labelling and information to be supplied

In addition, the following information shall be supplied:

- a) number of this Kenya Standard;
- b) trademark of the mask;
- c) name and physical address of manufacturer;

- d) width in centimetres and length in metres;
- e) the word 'Sterilized', if sterile; and
- f) mass of package in kilograms and grams.

6 Packing

Face masks shall be individually packed in paper in such a way as to prevent mechanical damage and contamination before use. Cartons or any other suitable packages, shall form the secondary package.

Annex A (informative)

Information for users

When breathing, speaking, coughing, sneezing etc., one releases smaller or larger amounts of droplets of secretions from the mucous membranes in the mouth and nose. The majority of the nuclei are between 0.5 μm and 12 μm in diameter and especially the larger droplets can contain micro-organisms from the source site. Nuclei can subsequently spread through the air to a susceptible site such as mouth, eyes and nose or sterile equipment.

The face masks intended to be used in operating rooms and health care settings with similar requirements are designed to protect the entire working environment. This standard, however, describes face masks with associated protection levels. As a minimum, face masks for general public use should protect the general public in order to reduce the risk of the spread of infections, particularly in epidemic or pandemic situations, like the Covid-19.

If the intended use of the mask is to protect the wearer against infective agents (bacteria, viruses or fungi), the use of a respirator device should be considered.

The level of efficiency offered by a mask depends on a number of factors such as the filtration efficiency, quality of the material and the fit of the mask on the wearer's face. Different designs are suited for different applications and the careful choice of mask is therefore important in order to achieve the desired result.

The filtration capacity of mask materials can vary depending on the filter media. The fit of masks varies considerably from those which are held in place by ear loops fastened behind the wearer's ears to those with tie bands around the head and a nose clamp that can be shaped to the wearer's nose. The effect of a very good or less good fit can be tested in vivo whereas the filtration efficiency may be reproducibly tested in vitro.

The considerable variations in results when masks are tested in vivo results in the need for large groups of test subjects and observations. It is thus usual to characterize mask performance using in vitro tests of the material from which the mask is made. It is, however, important to consider the fit of the mask carefully when a mask for a certain application is chosen. Users should request such information from their suppliers.

A further factor to be considered is the capacity of the mask to absorb moisture from the exhaled air and thereby to maintain its performance over a longer period of time. The more advanced designs easily maintain their performance through longer periods.

The contamination risk resulting from hand contact with a used mask means that it is essential that the mask is taken off and disposed of when no longer worn over nose and mouth. When there is a further need for protection then a new mask should be put on. Touching a used face mask or putting on a new one should always be followed by a full hand disinfection procedure and a used mask should always be disposed of when no longer needed or between two procedures.

In summary, to use an appropriate mask is an effective means to protect the working environment from droplet contamination from nose and throat during public discourse. Masks with very different performance are, however, available. Therefore, such factors as infection risk and mask fit should be carefully considered when choosing a mask.

Annex B (informative)

Cleaning and disinfecting for filtering half masks

B.1 General

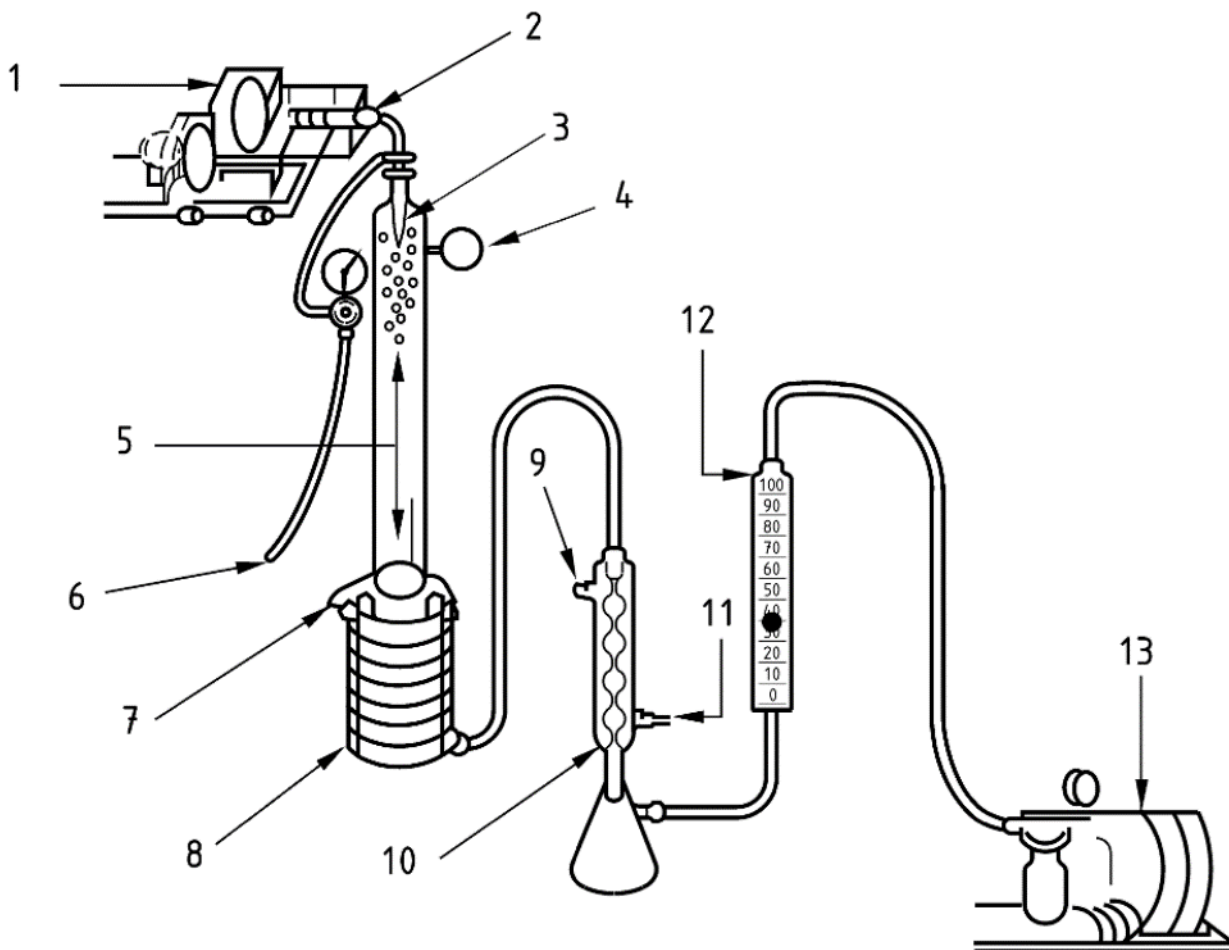
- B.1.1** A total of 2 particle filtering half masks/or face masks shall be tested: both as received.
- B.1.2** All tests shall be carried out by two test subjects at ambient temperature and humidity shall be recorded.
- B.1.3** Prior to the test, there shall be an examination to assure that the mask is in good working condition and that it can be used without hazard.
- B.1.4** Examination shall be done in accordance with clause B.1.3.
- B.1.5** For the test, persons shall be selected who are familiar with using such or similar equipment.
- B.1.6** During the tests, the face mask shall be subjectively assessed by the wearer and after the test, comments on the following shall be recorded:
- security of fastenings fasteners.
 - field vision for particle filtering masks.
 - any other comments reported by the wearer on request.
- B.1.7** For reusable face masks, procedures B.1.1 to B.1.4 shall be repeated.
- B.1.8** Procedures described in KS ISO 6330 shall be followed to clean reusable masks. This shall be repeated for 3 cycles and the mask examined and defects reported.

Annex C (informative)

Method for determination of breathability (differential pressure)

C.1 Principle

A device which measures the differential pressure 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 medical face mask material, as shown in Figure C.1. Water-filled manometers (M1 and M2) are used to measure the differential pressure. A flow meter is used for measurement of the airflow. An electric vacuum pump draws air through the apparatus and a needle valve is used to adjust the airflow rate.



Key

1 Drive mechanism	8 Microbial sampler
2 Bacterial suspension	9 Outlet to sink
3 Nebulizer	10 Condenser
4 Filter	11 Cold water inlet
5 Aerosol chamber	12 Calibrated flow meter
6 High pressure air source	13 Compressor (vacuum pump)
7 Test material	

Figure C.1 — BFE test apparatus**C.2 Apparatus**

C.2.1 Flow meter, capable of measuring an airflow of 8 l/min

C.2.2 Manometers, M_1 and M_2 or differential manometer

C.2.3 Electric vacuum pump

C.2.4 Valve

C.3 Test specimens

Test specimens are complete masks or shall be cut from masks. Each specimen shall be able to provide 5 different circular test areas of 2.5 cm in diameter. If one specimen cannot provide 5 test areas of 2.5 cm in diameter, the number of test areas retrieved should be representative for the entire mask. The number of specimens that shall be tested is minimum 5, but can be greater and shall be increased if necessary to allow for an AQL of 4 %. All specimens tested shall be taken from areas representative from the mask to incorporate all/any variation in construction.

Each test specimen shall be conditioned at $21\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and $85\% \pm 5\%$ relative humidity for the time required to bring them into equilibrium with atmosphere prior to testing.

C.4 Procedure

C.4.1 The test specimen is placed across the 2.5 cm diameter orifice (total area 4.9 cm^2) and clamped into place so as to minimize air leaks and that the tested area of the specimen will be in line and across the flow of air.

C.4.2 The pump is started and the flow of air adjusted to 8 l/min.

C.4.3 The manometers M_1 and M_2 are read and recorded.

C.4.4 The procedure described in steps C.4.1 through C.4.3 is carried out on 5 (or appropriate number of) different areas of the mask and the readings averaged.

C.5 Calculation of differential pressure

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

$$\Delta P = (X_{M1} - X_{M2})/4.9$$

where

- | | |
|------------|--|
| X_{M1} | is pressure in Pa, manometer M_1 , mean of 5 test areas, low pressure side of the material; |
| X_{M2} | is pressure in Pa, manometer M_2 , mean of 5 test areas, high pressure side of the material; |
| 4.9 | is the cm^2 area of the test material; and |
| ΔP | is the differential pressure per cm^2 of test material expressed in Pa. |

C.6 Test report

The following information shall be given in the test report:

- number and date of this Kenya Standard;
- lot number or batch code of the masks tested;
- flow rate during testing; and
- differential pressure for each test specimen.

Annex D (normative)

Test for filter efficiency

D.1 Principle

Aerosol particles of a certain concentration and particle size distribution are generated by the aerosol generator, passed through the mask cover at a predetermined gas flow rate. An appropriate particle detector shall be used to detect the particle size through the mask body. The percentage of particle matter reduction before and after the aerosol passed through the body of mask is used to evaluate the filtering efficiency of the mask body.

D.2 Samples and pre-treatment

D.2.1 Sixteen samples are divided into two groups of eight each; One group to be tested in the oil medium while the other is to be tested in salt medium.

D.2.2 Five samples are untreated, while the other three samples are pre-treated as described in D.3.

D.3 Pre-treatment by temperature and humidity

Pre-treatment equipment

- a) Test chamber for humidity tests
- b) Test chamber for high/low temperatures

D.4 Method

Take the samples from original package and pre-treat as follows:

- a) Keep requisite test samples at $38\text{ °C} \pm 2.5\text{ °C}$ and 85 ± 5 relative humidity for $24\text{ h} \pm 1\text{ h}$.
- b) Keep designated samples at $70\text{ °C} \pm 3\text{ °C}$ dry environment for $24\text{ h} \pm 1\text{ h}$.

Keep designated samples in $30\text{ °C} \pm 3\text{ °C}$ for $24\text{ h} \pm 1\text{ h}$.

Before undertaking any step, ensure that the temperatures of all samples are conditioned at room temperatures. Pre-treated samples shall be placed in closed containers/chambers and tested within 10 h.

D.5 Equipment

D.5.1 Filter efficiency test system for NaCl particles meeting the following requirements:

- a) The concentration of NaCl particles are less than 30 mg/m^3 . The count median diameter (CMD) is $(0.075 \pm 0.020)\text{ }\mu\text{m}$, and the geometric standard deviation of particle size distribution size is less than 1.86.
- b) The detected dynamic range of particles is $0.001\sim 100\text{ mg/m}^3$, and the accuracy is 1%.
- c) The detected flow range is $30 \sim 100\text{ l/min}$, and the accuracy is 2%.
- d) The testing range of filter efficiency is $0\sim 99.999\%$.

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- e) There shall be a neutralized device for neutralizing the charge of particles.

D.5.2 Filter efficiency testing system for oil particles

The requirements of filter efficiency test system for oily particles are as follows:

- a) Test medium is dioctyl sebacate (DEHS) or other applicable oily particles, such as paraffin oil. The particle concentration is less than 30 mg/m^3 , and the count median diameter (CMD) is $(0.185 \pm 0.020) \mu\text{m}$. The geometric standard deviation of particle size distribution is less than 1.60.
- b) The detected dynamic range of particles is $0.001\text{--}100 \text{ mg/m}^3$, and the accuracy is 1%.
- c) The detected flow range is $30 \sim 100 \text{ l/min}$, and the accuracy is 2%.
- d) The test range of filter efficiency is $0\text{--}99.999\%$.

D.6 Test conditions

The test ambient temperature is $25 \text{ }^\circ\text{C} \pm 5 \text{ }^\circ\text{C}$ and the relative humidity is $30 \% \pm 10 \%$.

D.7 Test process

- a) Test air flowing is $(85 \pm 4) \text{ l/min}$ (the air flowing should be divided equally if adopt multiple filtering element, such as dual filter element. The test flow of each filter element should be $(42.5 \pm 2) \text{ l/min}$; if the multiple filter element may be used alone, the test shall be applied as single filter element).
- b) Adjust filter efficiency test system and the relevant parameters into test condition.
- c) Fix the main body of the mask or filter element to the detection device airtight.
- d) Record sample filter efficiency after test start and the sampling frequency is no less than 1 time/ min.

The test shall be continued until particles on mask are loaded to 30 mg.

D.8 Data processing

Take the minimum value in the course of the entire test as the filter efficiency for the batch of test samples. The value keeps a decimal.

Annex E (informative)

List of recommended materials for making face masks for general public use

S/N	Single-layered or multi-layered composite					Conformity with requirements	
	Structure	Name	Composition	Basis weight (g/m ²)	Comment	Air permeability Vacuum pressure 100 Pa (breathability)	Splash protection (3 µ)
1)	Interlock			150		Nonconforming	OK
	Membrane	Nanomembrane		30			
	Interlock			150			
3)	Interlock knit						
4)	Woven, plain weave		Cotton	150		OK	OK
	Nonwoven, plain weave		Viscose Cotton	130 150			
5)		Microfibre		100		Nonconforming	OK
6)		Polycotton	Cotton, Polyester			Nonconforming	OK
	Nonwoven, wadding type		Polyester (textured)	Overall basis weight: 260 g/m ²			
		Polycotton	Cotton, polyester				
7)	Woven	Poplin "120 thread"	"Duck-billed" mask			Nonconforming	OK
	Woven	Poplin "120 thread"					
8)	Woven	Poplin "120 thread"	"Flat-fold" mask			OK	OK
	Woven	Poplin "120 thread"					
9)	Knit (flat-knit, weft insertion)		100% polyamide	25	2-layered laminate by chemical bonding	OK	Not suitable
	Nonwoven		100% polyester				

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S/N	Single-layered or multi-layered composite					Conformity with requirements	
	Structure	Name	Composition	Basis weight (g/m ²)	Comment	Air permeability Vacuum pressure 100 Pa (breathability)	Splash protection (3 μ)
10)	Knit (flat-knit, weft insertion) Nonwoven		100% polyamide 100% polyester	25	2-layered laminate by thermal bonding	OK	OK
11)	Woven			270		Nonconforming	OK
		Microfleece	100% polyester	125 200			
	Woven						
12)	Nonwoven		Polypropylene	60		OK	OK
	Nonwoven		Polypropylene	60			

S/N	Single-layered or multi-layered composite					Conformity with requirements	
	Structure	Name	Composition	Basis weight (g/m ²)	Comment	Barrier filtration efficiency (BFE)	Breathing Resistance
13)	Nonwoven SMS	Reliance SMS 200		43	Amcore® single and double layered	x	Not tested
14)	Nonwoven SMS	Reliance SMS 300		50	Amcore® single and double layered	x	Not tested
15)	Nonwoven SMS	Reliance SMS 400		60	Amcore® single and double layered	x	Not tested
16)	Nonwoven SMS	H100			Hydrated® single and double layered	x	Not tested
17)	Nonwoven	H200			Hydrated® single and double layered	x	Not tested
18)	Nonwoven	H300			Hydrated® single and double layered	x	Not tested

S/N	Single-layered or multi-layered composite					Conformity with requirements	
	Structure	Name	Composition	Basis weight (g/m ²)	Comment	Barrier filtration efficiency (BFE)	Breathing Resistance
19)	Nonwoven	H400			Hydrated® single and double layered	x	Not tested
20)	Nonwoven	H500			Hydrated® single and double layered	x	Not tested
21)	Nonwoven	Sterichamps S4			Sterimed® Paul Hartmann double layer, single use	x	Not tested

Annex F
(informative)

Specific recommendations for Do It Yourself (DIY) making

Recommendations	
<ul style="list-style-type: none"> — Use tightly constructed fabrics; — Assemble in two or three layers (same fabrics or different fabrics); — Use fabrics allowing air to pass through when breathing; — Use fabrics that are sufficiently soft and supple to apply around the face to ensure sealing; — Use fabrics that are not too warm; — Use smooth, non-irritating fabrics; — Wash fabric before. 	<ul style="list-style-type: none"> — Do not use light and loosely constructed fabrics; — Do not make a community face covering with a single thickness of fabric; — Do not use staples when designing or assembling the community face covering; — Do not use fabrics blocking the passage of air when breathing; — Do not use fabrics that are too stiff that would not be appropriate for sealing; Do not use warm fabrics that would make community face covering difficult to wear; — Do not use irritating fabrics that would make community face covering difficult to wear; — Do not make vertical seams, along the nose, mouth and chin; — Do not use as fabrics vacuum cleaner bags, insulation material used in building construction, diapers etc.

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