


**Test Report 3290671-3.**  
STRAX (U.K.) Limited

## Introduction.

This report has been prepared by O. Refoyo and relates to the activity detailed below:

Job/Registration Details	Client Details
<b>Job number:</b> 3290671-3 Job type: Testing samples submitted Start Date: 30/09/2020 Test type: Type Sample ID: 10193596 <b>Registration:</b> KM 736224 Scheme: Negative Pressure RPE Protocol: PP123 Scheme Manager: Nathan Shipley	STRAX (U.K.) Limited c/o Spaces Heathrow Airport Ground Floor, The Bower 4 Roundwood Avenue Stockley Park Hayes UB11 1AF United Kingdom

The report has been approved for issue by T Wicksey – Senior Test Engineer

Approved For Issue	
	Issue Date: 15 October 2020

## Objectives.

This is an independent Type Test evaluation to AFNOR SPEC S76-001 – Barrier masks - Guide to minimum requirements, methods of testing, making and use - Serial manufacture and artisanal making (or DIY).

## Product Scope.

Barrier masks - Guide to minimum requirements, methods of testing, making and use - Serial manufacture and artisanal making (or DIY).

## Report Summary.

Type testing to AFNOR SPEC S76-001 – Barrier masks - Guide to minimum requirements, methods of testing, making and use - Serial manufacture and artisanal making (or DIY).

The samples were received on 28 September 2020 and the testing was started on 30 September 2020.

The samples submitted complied with the requirements of the test work conducted.

Sample ID	ER Number	Description
1 to 30	10193596	Airpop Kids masks (barrier masks)

## Test Samples.

## Description of Test Samples.

Sample Description
Airpop Kids masks (barrier masks)

## Test Requirements.

AFNOR SPEC S76-001 – Barrier masks - Guide to minimum requirements, methods of testing, making and use - Serial manufacture and artisanal making (or DIY).

CLAUSE	REQUIREMENTS	ASSESSMENT
<b>5.1</b>	<b>General</b>	-
<b>5.1.1</b>	<b>Visual inspection</b>	Pass
<b>5.1.2</b>	<b>Dimensions</b>	Pass
<b>5.1.3</b>	<b>Packaging</b>	Pass
<b>5.1.4</b>	<b>Materials</b>	Manufacturer's Declaration
<b>5.1.5</b>	<b>Cleaning and drying</b>	Conducted (1)
<b>5.1.6</b>	<b>Surface condition of the parts</b>	Pass
<b>5.1.7</b>	<b>Penetration of the single layer or multi-layer composite</b>	Pass
<b>5.1.8</b>	<b>Harmlessness as regards the skin and inhaled air</b>	Manufacturer's Declaration
<b>5.1.9</b>	<b>Head harness</b>	Pass
<b>5.1.10</b>	<b>Breathing resistance</b>	Pass
<b>5.2</b>	<b>Specific requirements for serial manufacture</b>	-
<b>5.2.1</b>	<b>Cleaning and drying</b>	Conducted (1)
<b>7</b>	<b>Marking and information/instructions</b>	Pass
<b>Appendix A - Test Panel Data</b>		
<b>Product Photographs</b>		

(1) Performed as per the user instructions.

## Glossary of Terms.

Pass: Complies. Tested by BSI engineers at BSI laboratories

Pass 1: Complies. Witnessed by BSI engineers in manufacturers laboratory.

Pass 2: Complies. Tests carried out by third party lab; results accepted by BSI.

Pass\*: Report resulted in uncertainty and states that Compliance is more probable than non-compliance.

Fail: Non-compliance. Product does not meet the requirements of this clause.

Fail\*: Report resulted in uncertainty and states that Non-compliance is more probable than compliance.

N/T: Not Tested.

N/A: Not Applicable

AR: As Received

MS: Mechanical Strength

TC: Temperature Conditioned

SW: Simulated Wear

FT: Flow Test

## Conditions of Issue.

This Test Report is issued subject to the conditions stated in current issue of 'BSI Terms of Service'. The results contained herein apply only to the particular sample(s) tested and to the specific tests carried out, as detailed in this Test Report. The issuing of this Test Report does not indicate any measure of Approval, Certification, Supervision, Control or Surveillance by BSI of any product. No extract, abridgement or abstraction from a Test Report may be published or used to advertise a product without the written consent of BSI, who reserve the absolute right to agree or reject all or any of the details of any items or publicity for which consent may be sought.

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## Test Results.

CLAUSE	REQUIREMENT	ASSESSMENT
<b>5.1</b>	<b>General</b>	
<b>5.1.1</b>	<b>Visual inspection</b>  Visual inspection of the mask or of its components and verification of the corresponding technical documents shall be carried out.	Pass
<b>5.1.2</b>	<b>Dimensions</b>  The barrier masks against COVID-19 shall be sized in such a way as to correspond to the average morphology of the French population. The proposed dimensions are based on certain anthropomorphic data in ISO/TS 16796-2:2015 "Respiratory Protective Devices- Human Factors- Part 2: Anthropometrics"	-  Pass
<b>5.1.3</b>	<b>Packaging</b>  The barrier masks shall be packaged in such a way as to protect them against any mechanical damage and any contamination before use. Individual or grouped packaging solutions are at the manufacturer's discretion.  Testing shall be performed in accordance with 6.1.1.	Pass
<b>5.1.4</b>	<b>Materials</b>  The materials used shall be able to withstand handling and wear throughout the lifetime of the barrier mask, indicated by the manufacturer. There is a list of recommended materials for making the barrier mask in Annex A. The source making claims about performances	Manufacturer's Declaration
<b>5.1.5</b>	<b>Cleaning and drying</b>  The barrier mask is designed to be reusable; the material used shall withstand the cleaning and drying products and methods specified in sections 5.2.1 or 5.3.1.  The test described in 6.1.1 shall be carried out after each wash cycle. If any damage to the barrier mask is detected (less well-fitting, deformation, wear, etc.), the barrier mask is deemed non-compliant.	Conducted (1)  -
<b>5.1.6</b>	<b>Surface condition of the parts</b>  The parts of the barrier mask likely to be in contact with the user shall be free of sharp edges and burrs.  Testing shall be performed in accordance with 6.1.1.	Pass

(1) 10 cleaning cycles performed as per the user instructions.

## Test Results (Continued).

CLAUSE	REQUIREMENT	ASSESSMENT
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**5.1.7**

**Penetration of the single layer or multi-layer composite**

Penetration of the barrier masks shall have either a filtering capacity of 70% for solid particles or for liquid particles (droplets) with size as indicated below.

Pass (1)

The retention efficiency applies to masks that have undergone the number of washes indicated by the manufacturer.

Pass (2)

Testing shall be performed in accordance with 6.2.2.

Specific requirements for artisanal making (or DIY) are described in section 5.3.2.

	Solid particle	Liquid particle (droplet)
Test method	EN 13274-7, section 6 Sodium Chloride test method	EN 13274-7, section 7 Paraffin oil test method
	In accordance with the test protocol of the French Directorate General of Armaments (DGA) circulated in a letter of 25 March 2020.	

*NOTE: The particle size spectrum can extend to a limit of 3 µm.*

**Table A:** Minimum sodium chloride filtering capacity at 95 l/min

Sample No	Pre-test condition	Actual Penetration (%)	Min Specified Filtering Capacity (%)	Actual Filtering Capacity (%)
4	Washed	4.1820	70	95.8180
5	Washed	4.7970	70	95.2030
6	Washed	5.2162	70	94.7838
4'	AR	3.6547	70	96.3453

- (1) Sodium Chloride test method used, as requested by BSI Product Certification.
- (2) AR result reported under Client's request and only for reference. These cannot be taken into account for Certification.

## Test Results (Continued).

CLAUSE	REQUIREMENT	ASSESSMENT
5.1.8	<b>Harmlessness as regards the skin and inhaled air</b>	
	Materials that may come into contact with the user's skin shall not present known risks of irritation or adverse effects on health.	Manufacturer's declaration
	Materials that may release irritating substances into the inhaled air shall not constitute a hazard or nuisance for the user.	Manufacturer's declaration
	Testing shall be performed in accordance with 6.1.1.	

**5.1.9**

**Head harness**

The head harness shall be designed such that the barrier mask can be easily put on and removed.

Pass

It shall be sufficiently robust to hold the barrier mask in place in such a way as to avoid excessive tightness and discomfort when worn.

Pass

The head harness can go around the user's head or ears.

Pass

It can be made using an elastic strip or a fabric tie of the bias tape-type or other type, attached to the single layer or multi-layer composite. It can be sewn or welded. Other attachment methods are permitted.

Pass

NOTE; Use of staples can constitute a hazard or nuisance to the user

Testing shall be done in accordance with 6.1.1 and 6.1.2 (see also 6.2.3 for serial manufacture)

**Table B:** Head harness results

Sample No	Pre-test condition	Test subject	Assessment
7	AR	DK1	Pass
8	AR	OR1	Pass
9	AR	JS3	Pass

## Test Results (Continued).

CLAUSE	REQUIREMENT	ASSESSMENT
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**5.1.10**

**Breathing resistance**

The material used for the barrier mask shall not present inhalation resistance exceeding the following limits:

- a) Method 1: Determined by experts consequent to the technical specifications for the single layer or composite multi-layer.
  - Splash resistance pressure of 160 mbar;
  - Differential pressure of the material used shall not be greater than 0.6 mbar/cm<sup>2</sup>.
- b) Method 2: Dynamic sinusoidal flow test
  - Inhalation resistance: 2.4 mbar;
  - Exhalation resistance: 3.0 mbar.
- c) Method 3: Constant flow test:
  - Inhalation resistance: 2.4 mbar;
  - Exhalation resistance: 3.0 mbar.

Pass

Testing shall be performed in accordance with 6.2.4.

Specific requirements for artisanal making (or DIY) are described in section 5.3.3.

**Table C:** Breathing resistance - method 2. Dynamic sinusoidal flow test at (20x1.5)l/min (30 l/min)

Sample No	Pre-test condition	Dynamic flow (l/min)	Max spec inhalation resistance (mbar)	Actual inhalation resistance (mbar)
10	AR	30	2.4	0.8
11	AR	30	2.4	0.7
12	AR	30	2.4	0.7

**Table D:** Breathing resistance - method 2. Dynamic sinusoidal flow test at (20x1.5)l/min (30 l/min)

Sample No	Pre-test condition	Dynamic flow (l/min)	Max spec exhalation resistance (mbar)	Actual exhalation resistance (mbar)
10	AR	30	3.0	0.6
11	AR	30	3.0	0.6
12	AR	30	3.0	0.6

**5.2**

**Specific requirements for serial manufacture**

**5.2.1**

**Cleaning and drying**

It is recommended that the barrier mask withstands at least 5 washing cycles. The full wash cycle (wetting, washing, rinsing) shall be at least 30 minutes (laundry or other) with a wash temperature of 60°C and professional products. See the detail recommendations in section 9.4.

Conducted (1)

(1) 10 cleaning cycles performed as per the user's instructions.



## Test Results (Continued).

CLAUSE	REQUIREMENT	ASSESSMENT
7	<p><b>Marking and information/instructions</b></p> <p>The barrier masks shall be clearly and durably marked on the smallest marketable package available or shall be legible through the packaging if the packaging is transparent.</p>	
	a) The name, trademark or any other means of identification of the manufacturer or supplier;	Pass
	b) The number of this document and the visible wording "Barrier Mask";	Pass
	c) The recommended period of use for the barrier mask;	Pass
	d) The cleaning instructions (number of washes, washing and drying method);	Pass
	e) The following instruction: "This device is not a medical device in the sense of Regulation EU/2017/745 (surgical masks) nor is it personal protective equipment in the sense of Regulation EU/2016/425 (filtering masks type FFP2)."	Pass
	f) A pictogram of how to put the barrier mask in place may be substituted for the instructions.	Pass

## Appendix A – Test Panel Data.

Test Candidate	Facial Dimensions (mm)					Gender
	Length of face	Width of face	Face depth	Width of mouth	Head Circumference	
DK1	98	130	115	50	570	Female
OR1	112	123	114	48	554	Female
JS3	126	134	124	49	600	Male

Product photographs.



Front view (blue)



Side view (blue)



Front view (pink)



Side view (pink)

Model: Airpop Kids masks

Product photographs (Continued).



Front view (white)



Side view (white)



Inside view

Model: Airpop Kids masks

\*\*\* End of Report \*\*\*