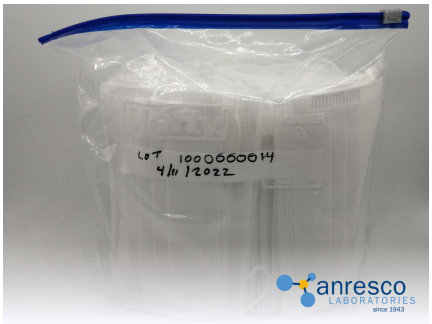
Consolidated COA

ANALYZED BY:

Anresco Laboratories
1375 Van Dyke Avenue,
San Francisco, CA 94124
C8-0000052-LIC

MANUFACTURER:

904 Red Road
McMinnville, TN 37110



SAMPLE INFORMATION

Sample No:
1127274

Product:
Level 3 - 3Ply Mask (5 masks)

Product Description:
Level 3 - 3Ply Mask (5 masks)

Lot No:
1000000014

Date Received:
05/19/2022

Date Reported:
06/02/2022

Summary of results and tests performed per:

Standard Specification for Performance of Materials Used in Medical Face Masks (ASTM F2100-19)

Method of Testing	Specimens Tested	Findings	ASTM F2100-19 Specification Requirements		
			Level 1 Barrier	Level 2 Barrier	Level 3 Barrier
Face Mask Bacterial Filtration Efficiency (ASTM F2101-19)	5	98.4	≥ 95%	≥ 98%	≥ 98%
Face Mask Particulate Filtration Efficiency (ASTM F2299/F2299M-03)	5	98.6	≥ 95%	≥ 98%	≥ 98%
Face Mask Air Flow Resistance and Differential Pressure (EN 14683)	5	3.03	< 5 mm H_2O/cm^2	< 6 mm H_2O/cm^2	< 6 mm H_2O/cm^2
Mask Synthetic Blood Penetration (ASTM F1862/F1862M-17)	32	Level 3: 31 Pass Level 2: Not Tested Level 1: Not Tested	80 mmHg ≥ 29 Pass	120 mmHg ≥ 29 Pass	160 mmHg ≥ 29 Pass
Face Mask Flame Retardant (16 CFR 1610)	5	Class 1	Class 1	Class 1	Class 1

Reported by

Laila Lam
Microbiologist

ANRESCO, INCORPORATED
OCTOBER 1 1978
CALIFORNIA

June 02, 2022

Scan to verify

Test Details

Mask Bacterial Filtration Efficiency

Method: ASTM F2101-19

Test Summary: This test method is used to measure the bacterial filtration efficiency (BFE) of medical face mask materials using the ratio of upstream bacterial challenge to downstream residual concentration to determine the filtration efficiency of medical face mask materials. This method was specifically designed using Staphylococcus aureus as a challenge organism. Materials to be tested were conditioned at 21 ± 5°C at 85 ± 5% Relative Humidity (RH) using a humidity chamber for 4 hours.

Number of Specimens Tested:	5	**Relative Humidity During Testing:**	85 %
Area of Specimens Tested:	~40cm^2	**Temperature During Testing:**	26 °C
Side of Specimens Tested:	Front	**Positive Control:**	1.4 x 10E4
Mean Particle Size:	3.0 ± 0.3µm	**Negative Control:**	No Growth
BFE Flow Rate:	28.3 L/min	**Instrument:**	GB-XF100

Specimen	Percent BFE (%)
1	97.7
2	97.7
3	97.7
4	98.7
5	100

Face Mask Particulate Filtration Efficiency

Method: ASTM F2299/F2299M - 03 (Reapproved 2017)

Test Summary: This test is to determine the ability of the mask material to filter particles. Latex Particles used for the testing are purchased from Sigma Aldrich (LB1-1ML) with a particle of 0.10-0.12 micron. Suspensions of latex spheres are prepared by diluting the 10% by volume solid with water by the factor of 1000:1. The test specimens were conditioned at 21 ± 3°C at 30-50 ± 5% Relative Humidity (RH) for 4 hours prior to testing.

Number of Specimens Tested:	5	**Relative Humidity During Testing:**	38.9 %
Area of Specimens Tested:	100cm^2	**Temperature During Testing:**	22.4 °C
Flow Rate:	28.3 L/min	**Instrument:**	GB-KF30010
Test Duration:	60 seconds		

Specimen	Percent PFE (%)
1	98.554
2	98.435
3	98.645
4	98.541
5	98.620

Standard Deviation: **0.0819**

Result Comment: **Masks meet Level 1, 2, and 3 Barrier specification of F2100-19**

Face Mask Air Flow Resistance and Differential Pressure

Method: EN 14683:2014

Test Summary: This test is to determine the breathability of the mask material. The procedure is performed on both sides of the mask using a constant flow rate of 8 Liters per minute for 10 seconds. Test area is 4.9 cm^2. The test specimens were conditioned at 21 ± 5°C at 85 ± 5% Relative Humidity (RH) for 4 hours prior to testing.

Number of Specimens Tested:	5	**Relative Humidity During Testing:**	40.5 %
Instrument:	GBN701	**Temperature During Testing:**	20.2 °C

Specimen	Delta P (Pa/cm^2)	Delta P (mm H_2O/cm^2)
1	29.0	2.96
2	29.7	3.03
3	30.5	3.11
4	29.4	3.00
5	29.8	3.04

Result Comment: **Masks meet Level 1, 2 and 3 Barrier specification of F2100-19**

Mask Synthetic Blood Penetration

Method: ASTM F1862/F1862M-17

Test Summary: This test is to evaluate the resistance of the mask material to penetration of biological liquids using synthetic blood. Only the outer part of the mask was tested. The test specimens were conditioned at 21± 5°C and 85 ± 5% Relative Humidity (RH) for 4 hours prior to testing. A 2 mL volume of synthetic blood is disbursed at the mask with a set and verified pressure. Each specimen was inspected within 10 seconds of dispensing the synthetic blood against the target area. The instrument is set to test at the three specific velocities: 450, 500, and 635 cm/s which correspone to a pressure of 10.7, 16.0, 21.3 kPa (80, 120, 160 mmHg) respectively.

Number of Specimens Tested:	32	**Relative Humidity During Testing:**	37.1 %
Test Distance:	30.5cm	**Temperature During Testing:**	21.8 °C
Instrument:	GB-BF20010		

80 mmHg	120 mmHg	160 mmHg
Not Tested	Not Tested	31
Not Tested	Not Tested	1

Result Comment: **Masks meet Level 3 Barrier specification of F2100-19**

Face Mask Flame Retardant

Method: 16 CFR 1610

Instrument: GBN-ZR01

Test Summary: This procedure is to evaluate the flammability of a textile. The test procedure requires that a 16mm (5/8 in) flame impinge on a specimen mounted at a 45-degree angle for 1 second at a distance of 127 mm (5in)/ The results provide a classification of flammability performance of the textile products. The test specimens were dried in the oven for 30 ± 2 minutes at 105 ± 3°C, then placed in a desiccator for a minimum of 15 minutes prior to testing.

Number of Specimens Tested:	5	**Relative Humidity During Testing:**	63.6 %
Instrument:	GBN-ZR01	**Temperature During Testing:**	16.8 °C

Specimen	Burn Duration	Findings
1	DNI	Class 1
2	DNI	Class 1
3	DNI	Class 1
4	DNI	Class 1
5	DNI	Class 1

IBE: Specimen ignited but self extinguished
DNI: Specimen did not Ignite

Classification	Plain Surface Textile Fabrics
Class 1	There is no burn time or the burn time is equal to or greater than 3.5 seconds.
Class 2	Is not applicable to plain surfance textile fabrics.
Class 3	Burn time is less than 3.5 seconds.

Plain Surface Textile Fabrics: any fabric which does not have an intentionally raised fiber or yarn surface such as a pile, nap, or tuft, but shall include those fabrics that have fancy woven, knitted, or flock-printed surfaces.

Result Comment: **Masks meet Level 1, 2, and 3 Barrier specification of F2100-19**

End of Report