



IPS TESTING

Test Report
February 4, 2021
Page 1 of 6
SGS-IPS 00141-21

Report to: Jared Scott
Altor Safety
711 Executive Boulevard Ste C
Valley Cottage, NY 10989

Sample Description: **Project IBR 23516 (Three Mask Samples)**

Date Received: January 22, 2021


Test(s) Requested: Flammability (16 CFR Part 1610), Resistance to Blood Penetration (ASTM F 1862)

PO Number: SGS IBR 23516

Analysis of Three Mask Samples

SGS-IPS Testing performed the testing listed above on three mask samples provided by Altor Safety. The results are summarized in Tables 1 and 2 on the following pages of this report. Per customer request the number of replicates for 16 CFR Part 1610 was increased to 32.

If you have any questions, please contact us. SGS-IPS Testing is an ISO 9001 certified lab issued by ABS Quality Evaluations, with additional ISO 17025 accreditation in the field of testing issued by ANAB which applies to Resistance to Blood Penetration (ASTM F 1862) and Flammability (16 CFR Part 1610).

Authorized by 
Jennifer Goggans
Laboratory Manager

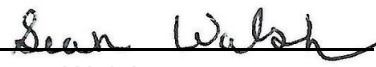
Signed 
Sean Walsh
Lab Technician
Physical Testing
920-749-3040

Table 1. Physical Properties

Face Mask +altor, Made in USA Lot #Q12310, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12350, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12370, altor Safety, 3-Ply Surgical Face Mask (JN 23516)
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Flammability (16 CFR Part 1610)



AT-1659

Orientation	Nose to Chin	Nose to Chin	Nose to Chin
Test Side	Outside	Outside	Outside
Burn Time (sec)			
1	DNI	DNI	DNI
2	DNI	DNI	DNI
3	DNI	DNI	DNI
4	DNI	DNI	DNI
5	DNI	DNI	DNI
6	DNI	DNI	DNI
7	DNI	DNI	DNI
8	DNI	DNI	DNI
9	DNI	DNI	DNI
10	DNI	DNI	DNI
11	DNI	DNI	DNI
12	DNI	DNI	DNI
13	DNI	DNI	DNI
14	DNI	DNI	DNI
15	DNI	DNI	DNI
16	DNI	DNI	DNI
17	DNI	DNI	DNI
18	DNI	DNI	DNI
19	DNI	DNI	DNI
20	DNI	DNI	DNI
21	DNI	DNI	DNI
22	DNI	DNI	DNI
23	DNI	DNI	DNI
24	DNI	DNI	DNI
25	DNI	DNI	DNI
26	DNI	DNI	DNI
27	DNI	DNI	DNI
28	DNI	DNI	DNI
29	DNI	DNI	DNI
30	DNI	DNI	DNI
31	DNI	DNI	DNI
32	DNI	DNI	DNI
Average	DNI	DNI	DNI

Table 1. Physical Properties (contd.)

	Face Mask +altor, Made in USA Lot #Q12310, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12350, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12370, altor Safety, 3-Ply Surgical Face Mask (JN 23516)
Classifications	Indicates Class 1	Indicates Class 1	Indicates Class 1

IBE indicates the specimen Ignited But Extinguished.
DNI indicates the specimen Did Not Ignite.
Average calculated based on combusted samples only.

Table 2. Resistance to Blood Penetration (ASTM F 1862)

Face Mask +altor, Made in USA Lot #Q12310, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12350, altor Safety, 3-Ply Surgical Face Mask (JN 23516)	Face Mask +altor, Made in USA Lot #Q12370, altor Safety, 3-Ply Surgical Face Mask (JN 23516)
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AT-1659

Resistance to Blood Penetration (Pass/Fail)

1	Pass	Pass	Pass
2	Pass	Pass	Pass
3	Pass	Pass	Fail
4	Pass	Pass	Pass
5	Pass	Pass	Pass
6	Pass	Pass	Pass
7	Pass	Pass	Pass
8	Pass	Pass	Pass
9	Pass	Pass	Pass
10	Pass	Pass	Pass
11	Pass	Pass	Pass
12	Pass	Pass	Pass
13	Pass	Pass	Pass
14	Pass	Pass	Pass
15	Pass	Pass	Pass
16	Pass	Pass	Pass
17	Pass	Pass	Pass
18	Pass	Pass	Pass
19	Pass	Pass	Pass
20	Pass	Pass	Pass
21	Pass	Pass	Pass
22	Pass	Pass	Pass
23	Pass	Pass	Pass
24	Pass	Pass	Pass
25	Pass	Pass	Pass
26	Pass	Pass	Pass
27	Pass	Pass	Pass
28	Pass	Pass	Pass
29	Pass	Pass	Pass
30	Pass	Pass	Pass
31	Pass	Pass	Pass
32	Pass	Pass	Pass

Resistance to Blood Penetration Summary 32 Pass/0 Fail 32 Pass/0 Fail 31 Pass/1 Fail

Test Parameters

Synthetic Blood Lot #	101201	101201	101201
Test Pressure (mmHg)	120	120	120

Method(s) and Notes:

All valid results are included in the statistical analyses.
Revisions of SGS-IPS methods when used are current at the time of testing.
Samples tested and conditioned in TAPPI standard conditions unless requested otherwise by customer or otherwise specified.
Samples were not preconditioned.

16 CFR Ch. II Part 1610 (1-1-18 Edition) - Standard for the Flammability of Clothing Textiles
Testing conducted as a Plain Surface Textile Fabric.

Samples were not refurbished.

Preliminary tests to determine most rapidly burning direction were not conducted.

Samples were cooled in a desiccator after oven drying for a minimum of 15 minutes.

If samples could not be dried in an oven, samples were placed in a desiccator for a minimum of 1 hour.

Specimens were cut to 2.5"x6" to assist in securing specimens in the specimen holder.

ASTM F 1862/F 1862M-17 Standard Test Method for Resistance of Medical Face Masks to Penetration by Synthetic Blood (Horizontal Projection of Fixed Volume at a Known Velocity)

A 2 mL check was performed at the beginning, middle and end of each sample.

Synthetic blood is purchased from Johnson, Moen & Co. Surface Tension is not independently verified after receipt and unused synthetic blood is stored in original plastic bottles.

Samples were conditioned prior to testing. Chamber conditions can be found as reported.

Analyzed by: SW

Quality review by: MAG

Date(s) of testing: January 29-February 3, 2021

Room Conditions

	Relative Humidity (%)	Temperature (°F)
Conditioning Environment	50.0	73.4
Maximum during testing	50.1	73.6
Minimum during testing	50.0	73.4

Chamber Conditions ASTM F 1862 120mmHg

	Relative Humidity (%)	Temperature (°F)
Chamber Maximum	86.6	71.7
Chamber Minimum	83.4	69.4

Note: See the method(s) cited above for available estimates of measurement uncertainty. Unless otherwise noted, sampling was performed by customer.

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Test Method: EN14683:2019 Annex C Method for determination of breathability (differential pressure)
IBR JN: 23516C2

 Performed for: altor Safety
 Location: Valley Cottage, NY
 Contact: Jared Scott

Test Date: 19 January 2021

Description of Samples: altor safety, 3-Ply Surgical Face Mask, Flat-fold, Manufactured By: altor safety, Valley Cottage, NY
Lot Number: Q12350

 Sample Source: altor Safety LLC
 Date Samples Received: 12 January 2021

 Fluid: Air
 Flow Rate: 8 lpm
 Effective Area: 4.9 cm²

Filter ID	Mean Differential Pressure / Area (mmH ₂ O/cm ²)	Temp (°C)	RH (%)	BP (mmHg)
23516-97	2.5	23.8	40.4	736.3
23516-98	2.8	23.8	40.4	736.3
23516-99	2.6	23.8	40.4	736.3
23516-100	2.8	23.8	40.4	736.3
23516-101	2.6	23.8	40.5	736.3
23516-102	2.8	23.8	40.5	736.3
23516-103	2.5	23.8	40.4	736.3
23516-104	2.8	23.8	40.3	736.3
23516-105	2.6	23.8	40.2	736.3
23516-106	2.5	23.8	40.2	736.3
23516-107	2.7	23.8	40.2	736.3
23516-108	2.6	23.8	40.2	736.3
23516-109	2.7	23.8	40.3	736.3
23516-110	2.6	23.8	40.2	736.3
23516-111	3.0	23.8	40.2	736.3
23516-112	2.7	23.8	40.3	736.3
23516-113	2.6	23.8	39.9	736.3
23516-114	2.6	24.0	39.7	736.3
23516-115	2.4	24.0	39.7	736.3
23516-116	3.0	24.0	39.8	736.3
23516-117	2.7	24.0	39.5	736.3
23516-118	3.0	24.0	39.5	736.3
23516-119	3.0	24.0	39.6	736.3
23516-120	2.6	24.0	39.7	736.3
23516-121	2.8	23.9	39.9	736.2
23516-122	2.6	23.9	39.9	736.2
23516-123	2.8	23.9	39.9	736.2
23516-124	2.6	23.9	39.9	736.2
23516-125	2.9	23.9	39.9	736.2
23516-126	2.7	23.9	39.9	736.2
23516-127	2.8	23.9	39.9	736.2
23516-128	2.6	23.9	39.9	736.2
Mean	2.7			
σ	0.16			
Maximum	3.0			
Minimum	2.4			

 Notice: These data relate only to the samples tested. This report may be copied only in its entirety.
 Performed By: LA

Data Location: LAB-210111

Test Method: EN14683:2019 Annex C Method for determination of breathability (differential pressure)
IBR JN: 23516C2

 Performed for: altor Safety
 Location: Valley Cottage, NY
 Contact: Jared Scott

Test Date: 19 January 2021


**Description of Samples: altor safety, 3-Ply Surgical Face Mask, Flat-fold, Manufactured By: altor safety, Valley Cottage, NY
 Lot Number: Q12350**

 Sample Source: altor Safety LLC
 Date Samples Received: 12 January 2021

 Fluid: Air
 Flow Rate: 8 lpm
 Effective Area: 4.9 cm²

 Notice: These data relate only to the samples tested. This report may be copied only in its entirety.
 Performed By: LA Data Location: LAB-210111

Equipment	IBR ID	Mfg	Model No.	Serial No.	Range	Cal.Due
Flow Meter	AF-112	Alicat Scientific	M20SLPM-D/5M	99928	0.1-20 SLPM	8/27/2021
Differential Pressure	MAN-66	Dwyer	477B-1	014M09	0.1-20.0 inH2O	11/23/2021
Temp / Humidity	RH-204	Omega	OM-DVTH	421-493-0314	13-82%/60-80F	2/10/2021
Barometric Pressure	MAN-51	Testo	511	39111389/505	300-1200 hPa	8/31/2021

 Reviewed By: 
 Daniel R. Miller, Air Labs Manager

Revision	Editorial / Technical	Description	Approved By	Release Date
		Initial Release	DRM	20/01/2021

Test Method: ASTM F2299/F2299M-03 (reapproved 2017) Determining the Initial Efficiency of Materials Used in Medical Face Masks to Penetration by Particulates Using Latex Spheres

Testing parameters per ASTM F2100-19 Standard Specification for Performance of Materials Used in Medical Face Masks

IBR JN: 23516D2 r1

Performed for: altor Safety

Date: 19 January 2021

Location: Valley Cottage, NY

Contact: Jared Scott

Description of Samples: altor safety, 3-Ply Surgical Face Mask, Flat-fold, Manufactured By: altor safety, Valley Cottage, NY

LOT NUMBER: Q12350

Test Area: 100 cm²

Source: altor Safety LLC

Date Samples Received: 12 January 2021

Fluid: Air

Flow Rate : 28.3 lpm

Face Velocity: 4.7 cm/s

Challenge: 0.1µm (±15% CV) Latex Microspheres (Neutralized)

Filter ID	Differential Pressure (mmH ₂ O)	Penetration (%)	Efficiency (%)	Temp (°C)	RH (%)	BP (mmHg)
23516-65	2.3	0.7	99.3	22.1	42.3	735.9
23516-66	2.3	0.8	99.3	22.1	43.2	735.9
23516-67	2.0	0.8	99.2	22.2	44.5	735.9
23516-68	2.0	0.8	99.2	22.1	43.3	735.9
23516-69	2.3	0.7	99.3	22.2	42.7	735.9
23516-70	2.0	0.8	99.2	22.2	43.5	735.9
23516-71	2.0	0.8	99.2	22.2	43.7	735.9
23516-72	2.3	0.7	99.3	22.2	43.0	735.9
23516-73	2.3	0.8	99.2	22.3	42.7	735.9
23516-74	2.0	0.9	99.1	22.3	43.8	735.9
23516-75	2.3	0.7	99.3	22.3	43.6	736.6
23516-76	2.3	0.9	99.1	22.3	42.7	736.6
23516-77	2.0	0.8	99.2	22.2	43.9	736.6
23516-78	2.0	0.8	99.2	22.2	43.4	736.6
23516-79	2.0	0.8	99.2	22.2	42.9	736.6
23516-80	2.3	0.8	99.2	22.2	43.3	736.6
23516-81	2.3	0.7	99.3	22.2	42.8	736.6
23516-82	2.3	0.7	99.3	22.2	44.5	736.6
23516-83	2.0	0.8	99.2	22.4	43.4	736.6
23516-84	2.0	0.8	99.2	22.1	43.8	736.6
23516-85	0.0	0.8	99.2	22.1	43.5	737.0
23516-86	2.5	0.7	99.3	22.2	42.5	737.0
23516-87	2.0	0.8	99.2	22.2	42.5	737.0
23516-88	2.3	0.9	99.1	22.1	42.8	737.0
23516-89	2.3	0.8	99.2	22.0	42.3	737.0
23516-90	2.0	0.8	99.2	22.0	43.7	737.0
23516-91	2.0	0.9	99.1	22.0	44.0	737.0
23516-92	2.3	0.8	99.3	22.4	43.2	737.0
23516-93	2.0	0.8	99.2	22.3	42.9	737.0
23516-94	2.3	0.9	99.1	22.3	42.8	737.0
23516-95	2.0	0.8	99.2	22.2	43.5	737.1
23516-96	2.3	1.0	99.0	22.2	43.6	737.1
Mean		0.8	99.2			
σ		0.1	0.1			
Max		1.0	99.3			
Min		0.7	99.0			

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.

Performed By: SRO

Data Location: SRO201015

Test Method: ASTM F2299/F2299M-03 (reapproved 2017) Determining the Initial Efficiency of Materials Used in Medical Face Masks to Penetration by Particulates Using Latex Spheres

Testing parameters per ASTM F2100-19 Standard Specification for Performance of Materials Used in Medical Face Masks

IBR JN: 23516D2 r1

Performed for: altor Safety

Location: Valley Cottage, NY

Date: 19 January 2021

Contact: Jared Scott

Description of Samples: altor safety, 3-Ply Surgical Face Mask, Flat-fold, Manufactured By: altor safety, Valley Cottage, NY

LOT NUMBER: Q12350

Test Area: 100 cm²

Source: altor Safety LLC

Date Samples Received: 12 January 2021

Fluid: Air

Flow Rate : 28.3 lpm

Face Velocity: 4.7 cm/s

Challenge: 0.1µm (±15% CV) Latex Microspheres (Neutralized)



Notice: These data relate only to the samples tested. This report may be copied only in its entirety.

Performed By: SRO

Data Location: SRO201015

Manufacturer	Model Number	Serial Number	IBR ID	Range of Use	Cal Due
Meriam	50MJ10	G-61188	AF-77	6 - 48 slpm	4/7/2025
Dwyer	DHII-007	Date Code: A31X	MAN-31	0.1-10.0 inH ₂ O	2/17/2021
Vaisala	HMT330	L5220038	RH-206	12-75%RH/16-27C	1/12/2022
Testo	511	39111389/505	MAN-51	300-1200 hPa	8/31/2021
PMS	Lasair III 110	116514	N/A	0.1-5.0 µm	5/29/2021
PMS	Lasair III 110	102709	N/A	0.1-5.0 µm	3/1/2021

Reviewed By: _____

Daniel R. Miller, Air Labs Manager

Revision	Editorial / Technical	Description	Approved By	Release Date
		Initial release	DRM	1/20/2021
1	Technical	Cal due date corrected for RH-206	DRM	5/24/2021

SGS IBR LABORATORIES TEST REPORT

SCOPE OF WORK

Performance Testing of Medical Face Masks to
*ASTM F2100 Standard Specification for Performance of
Materials Used in Medical Face Masks, 2020 Edition*

REPORT NUMBER

104519332CRT-007

ISSUE DATE

March 23, 2021

PAGES

5

DOCUMENT CONTROL NUMBER

GFT-OP-10i (28-Nov-2018)

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TEST REPORT

Issued March 23, 2021

Intertek Report No. 104519332CRT-007

Intertek Project No. G104519332

CLIENT

SGS IBR Laboratories
11599 Morrissey Rd
Grass Lake, MI 49240
USA

TEST STANDARD

ASTM F2100 *Standard Specification for Performance of Materials Used in Medical Face Masks*,
2020 Edition

AUTHORIZATION

Quote Number: Qu-01129232-0

SAMPLE IDENTIFIED BY THE CLIENT AS

Product Type: Face Mask
Reference Number: JN 23516 – Lot Q12350

SAMPLE INFORMATION

Date(s) Samples Received: January 13, 2021
Condition of Samples: Production Run
Date(s) of Testing: March 18, 2021

TEST INFORMATION

ASTM F2101 *Bacterial Filtration Efficiency*
EN 14683:2019 Annex C *Differential Pressure*
ASTM F2299 *Sub-Micron Particulate Filtration*
ASTM F1862 *Resistance to Penetration by Synthetic Blood*
16 CFR 1610 *Flammability*

Test data attached
Not tested under this project
Not tested under this project
Not tested under this project
Not tested under this project

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TEST REPORT

Issued March 23, 2021

Intertek Report No. 104519332CRT-007

Intertek Project No. G104519332

SECTION 1

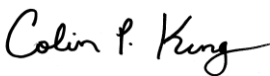
CONCLUSION


This test report represents the testing covered by proposal number Qu-01129232-0.

The observations and test results in this report are relevant only to the sample tested. Intertek makes no representations or warranties, express or implied, regarding units that were not tested including, but not limited to, units that may be part of the same lot.

If there are any questions regarding the results contained in this report, or any other services offered by Intertek, please do not hesitate to contact the undersigned.

Please note this Test Report does not represent authorization for the use of any Intertek certification marks.

Project Owner: Colin P. King
Title: Technical Writer
Signature: 
Date: March 23, 2021

Project Reviewer: Jason Allen
Title: Technical Advisor
Signature: 
Date: March 23, 2021

REPORT REVISIONS

Date / Project #	Project Handler/ Reviewer	Description of Change
		None

TEST REPORT

SECTION 2

ASTM F2100-20 TEST DATA

BACTERIAL FILTRATION EFFICIENCY (BFE), ASTM F2101-19

Specimens conditioned for 4-hours at 20.4-22.1°C and 83-86%RH

Specimen	JN 23516 – Lot Q12350						Plate Count	% BFE
	Stage							
	1	2	3	4	5	6		
Mask 1	0	0	0	4	5	0	9	99.85
Mask 2	0	0	0	2	7	0	9	99.85
Mask 3	0	0	0	2	5	0	7	99.88
Mask 4	0	0	0	5	13	0	18	99.70
Mask 5	0	0	0	6	5	0	11	99.82
Mask 6	0	0	1	3	18	0	22	99.64
Mask 7	0	0	0	1	2	0	3	>99.9
Mask 8	0	0	0	4	10	0	14	99.77
Mask 9	0	0	0	8	26	0	34	99.44
Mask 10	0	1	0	6	15	0	22	99.64
Mask 11	1	0	1	2	16	0	20	99.67
Mask 12	0	0	0	0	0	0	0	>99.9
Mask 13	1	2	3	10	44	0	60	99.01
Mask 14	0	0	0	2	0	0	2	>99.9
Mask 15	1	0	0	4	5	0	10	99.84
Mask 16	0	0	0	2	3	0	5	>99.9
Mask 17	0	0	0	0	0	0	0	>99.9
Mask 18	0	0	1	2	5	0	8	99.87
Mask 19	0	0	0	0	2	0	2	>99.9
Mask 20	0	0	0	0	1	0	1	>99.9
Mask 21	0	0	0	0	0	0	0	>99.9
Mask 22	0	0	0	3	8	0	11	99.82
Mask 23	0	1	1	4	10	1	17	99.72
Mask 24	0	1	0	6	12	0	19	99.69
Mask 25	0	0	1	9	9	0	19	99.69
Mask 26	0	1	1	1	14	0	17	99.72
Mask 27	0	0	0	6	10	0	16	99.74
Mask 28	0	0	0	0	0	0	0	>99.9
Mask 29	0	1	0	12	48	0	61	99.00
Mask 30	0	0	0	11	37	0	48	99.21
Mask 31	3	0	1	4	18	1	27	99.56
Mask 32	0	1	0	5	10	0	16	99.74

TEST REPORT

Test Set-up Information	
Area of Test Specimen (cm ²)	48.32
Specimen Side Facing Challenge	Inside
Flow Rate (LPM)	28.3 ± 0.5
Averaged + Control Plate Count	6075
Mean Particle Size (µm)	2.49,2.95

TEST EQUIPMENT INFORMATION

Description	Control Number	Calibration Date	Calibration Due
Conditioning Chamber	308-H321	1/20/2021	1/20/2022
Timer	308-G22	10/14/2020	10/14/2021
Pipette	308-H296		VBU
Six-Stage Cascade Impactor	308-H392		VBU
Date of Testing	3/18/2021		