Total Quality. Assured.

Number: HKGT05111210

TEST REPORT

Applicant: SUNLIGHT ECO-TECH LIMITED
UNIT D 2/F SPEEDY IND BLDG
114 HOW MING ST
KWUN TONG
KLN HK

Attn: MARTIN Z.LI

Date: Jun 15, 2020

Sample Description As Declared :

No. Of Sample	:	Several
Buyer's Name	:	-
Agent's Name	:	-
Manufacturer's Name	:	Sunlight Eco-Tech Limited
Sample Description	:	Mask
Colour	:	Blue
Style No.	:	-
Order No. / PO No.	:	-
Product End Uses	:	-
Fibre Content	:	-
Fabric/GMT Weight	:	-
Ref.	:	-

Date Received/Date Test Started : Apr 08, 2020

Applicant's Provided Care Instruction/Label :

-

For and on behalf of
Intertek Testing Services Hong Kong Limited

Teddy Y. N. Chung
Director

Intertek Testing Services Hong Kong Limited
2/F Garment Centre
576 Castle Peak Road
Kowloon, Hong Kong
Tel +852 2173 8888
Fax +852 2786 1903
intertek.com.hk

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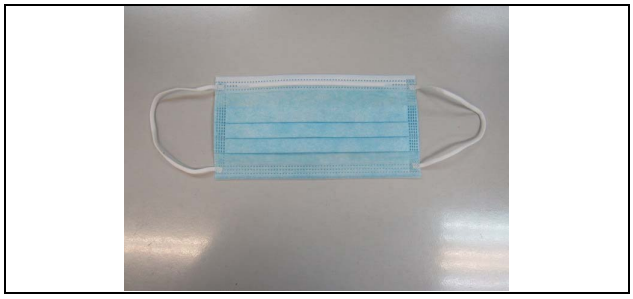
TEST REPORT

Original Sample Photo:



For any queries on this report, you are welcome to contact our customer service representatives:

EM3

Rebecca Chan at (852) 63290431 or email to rebecca.chan@intertek.com

Angie Yu (852) 98639123 or email to angie.yu@intertek.com

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Tests Conducted (As Requested By The Applicant)

1 Bacteria Filtration Efficiency (BFE) and Differential Pressure (Delta P) GLP Report:

Summary: The BFE test is performed to determine the filtration efficiency of test articles by comparing the bacterial control counts upstream of the test article to the bacterial counts downstream. A suspension of *Staphylococcus aureus* was aerosolized using a nebulizer and delivered to the test article at a constant flow rate and fixed air pressure. The challenge delivery was maintained at 1.7 - 3.0 x 10^3 colony forming units (CFU) with a mean particle size (MPS) of 3.0 ± 0.3 µm. The aerosols were drawn through a six-stage, viable particle, Andersen sampler for collection. This test method complies with ASTM F2101-19 and EN 14683:2019, Annex B.

The Delta P test is performed to determine the breathability of test articles by measuring the differential air pressure on either side of the test article using a manometer, at a constant flow rate. The Delta P test complies with EN 14683:2019, Annex C and ASTM F2100-19.

All test method acceptance criteria were met.

Test side: Blue Side

BFE Test Area: ~40 cm²

BFE Flow Rate: 28.3 Liters per minute (L/min)

Delta P Flow Rate: 8 L/min

Conditioning Parameters: 85 ± 5% relative humidity (RH) and 21 ± 5°C for a minimum of 4 hours

Test Article Dimensions: ~178 mm x ~171 mm

Positive Control Average: 2.9 x 10^3 CFU

Negative Monitor Count: <1 CFU

MPS: 3.0 µm

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TEST REPORT

Tests Conducted (As Requested By The Applicant)

Bacteria Filtration Efficiency (Cont'd)

Results:

Test Article Number	Percent BFE (%)
1	99.8
2	99.7
3	99.5
4	99.7
5	99.6

Test Article Number	Delta P (mm H_2O/cm^2)	Delta P (Pa/cm^2)
1	3.3	31.9
2	3.4	33.7
3	3.3	32.3
4	3.4	33.3
5	3.5	33.9

The filtration efficiency percentages were calculated using the following equation:

$$\%BFE = \frac{C-T}{C} x100$$

C= Positive control average
T= Plate count total recovered downstream of the test article
Note: The plate count total is available upon request

Test Article Preparation: The test articles were conditioned for a minimum of 4 hours at 21 ± 5°C and 85 ± 5% RH, prior to BFE and Delta P testing.

Test Method Acceptance Criteria: The BFE positive control average shall be maintained at 1.7 – 3.0 x 10^3 CFU.

The MPS control average of the challenge aerosol shall be maintained at 3.0 ± 0.3 µm.

The Delta P test flow rate shall be maintained at 8 L/min throughout the testing.

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TEST REPORT

Tests Conducted (As Requested By The Applicant)

Bacteria Filtration Efficiency (Cont'd)

Procedure:

BFE: A culture of *S. aureus*, ATCC #6538, was diluted in peptone water (PEPW) to yield challenge level counts of 1.7 – 3.0 x 10^3 CFU per test article. The bacterial culture suspension was pumped through a nebulizer at a controlled flow rate and fixed air pressure. The constant challenge delivery, at a fixed air pressure, formed aerosol droplets with a MPS of approximately 3.0 µm. The aerosol droplets were generated in a glass aerosol chamber and drawn through a six-stage, viable particle, Andersen sampler for collection. Test articles, positive controls, and reference material received a one minute challenge followed by a one minute vacuum cycle.

The Andersen sampler, a sieve sampler, impinged the aerosol droplets onto six soybean casein digest agar (SCDA) plates based on the size of each droplet. The agar plates were incubated at 37 ± 2°C for 48 ± 4 hours and the colonies formed by the bacteria laden aerosol droplets were then counted and converted to probable hit values using the positive hole conversion chart provided by Andersen. These converted counts were used to determine the average challenge level delivered to the test articles. The distribution ratio of the colonies on each of the six agar plates was used to calculate the MPS of the challenge aerosol.

Delta P: The Delta P test simply measured the differential air pressure on either side of the test article using an incline, "U" tube, or digital manometer. Testing was conducted at a flow rate of 8 L/min (volumetric). At least one reference material is included with each set of test articles.

The Delta P values were reported in mm water/cm^2 and Pa/cm^2 of test area and calculated using the following equation:

$$Delta\ P = \frac{\bar{M}}{\mathrm{A}}$$

Where: $\bar{M}$ = Average mm of water of the test replicates per test article

A = Area of the test article holder (cm^2)

The test article holder used in the Delta P test has a test area of 4.9 cm^2.

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Bacteria Filtration Efficiency (Cont'd)

Compliance Statement: The test was conducted in accordance with the USFDA (21 CFR Parts 58, 210, 211 and 820) Regulations. This final report reflects the raw data.

Activity	Date
Study Initiation	30 Apr 2020
Phase Inspected by Quality Assurance: Delta P Measurements	19 May 2020
Audit Results Reported to Study Director	01 Jun 2020
Audit Results Reports to Management	01 Jun 2020

Data Disposition: The study plan, raw data and final report from this study are archived at competent subcontractor laboratory.

Remark: The test was conducted by competent subcontractor laboratory.

End of Report

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