SOURCEWEB®
Products

Powerful filtering, excellent permeability

AirQUEEN Nano Mask

Masks are a must!
Introducing easy-to-breathe mask with exceptional filter

MADE IN KOREA

Made with our own proud technology-AirQUEEN Nano Mask

- Nanofiber Filter Manufactured by: LEMON Co., Ltd.
- Mask Manufacture & Distribution: TOPTEC Co., Ltd.

Breathing New Technology, Nanofiber

Nanofiber Filter

Nano fibers are only 1 nanometer, 1 billionth of a meter, in thickness
Nanofiber is a new material made by building these fibers sterically
for a fishnet structure that has better permeability, blockability, and
durability than any fiber ever invented.

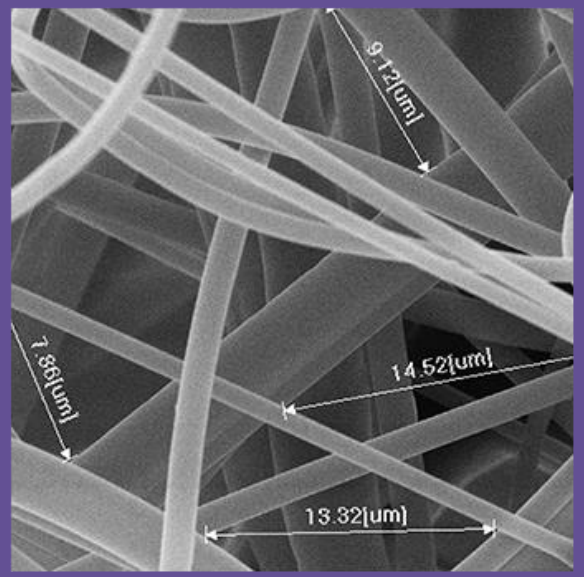
Permeability Blockability Durability

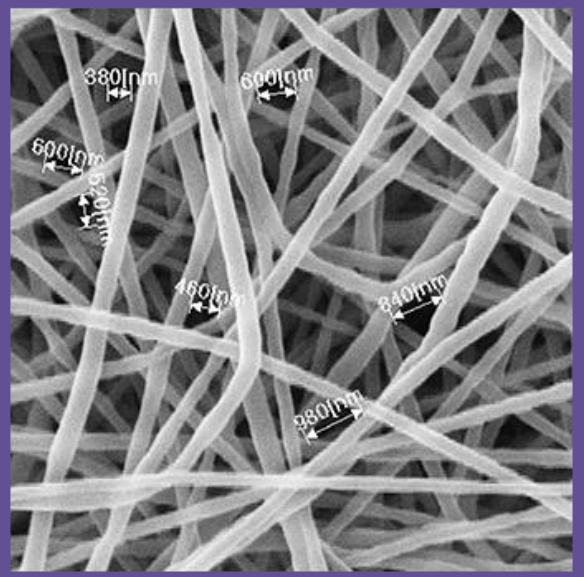
Nanofiber Filter has a different
fiber thinkness / fiber thinkness / filtering method
from the existing electrostatic filter

Melt-Blown Filter

5,000 times enlarged

The fiber is thick
Average space between the
fibers is over 10μm





Nanofiber Filter

15,000 times enlarged

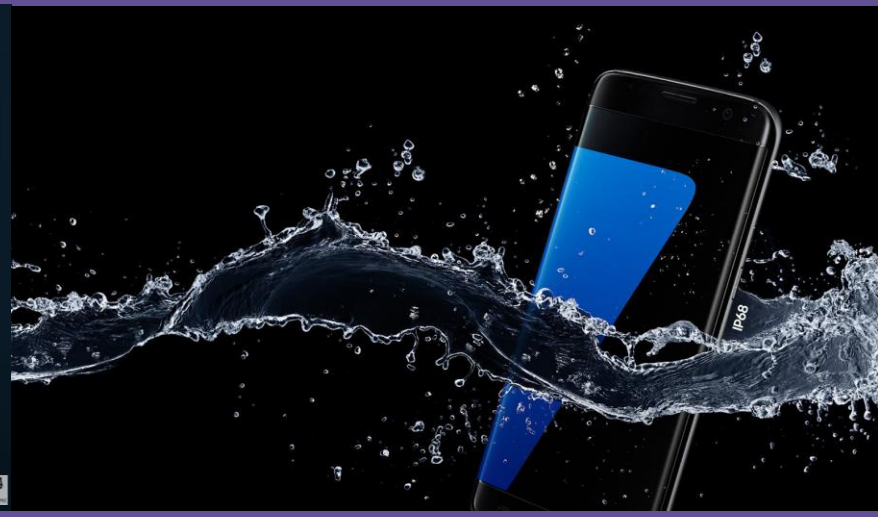
Very thin, nano thickness
Average space between the fibers
is 1.0μm, with self-filtering

The Nanofiber Filter from is a cutting-edge technology applied to global brands and products

It is exclusively distributed to THE NORTH FACE as the brand FUTURELIGHT.

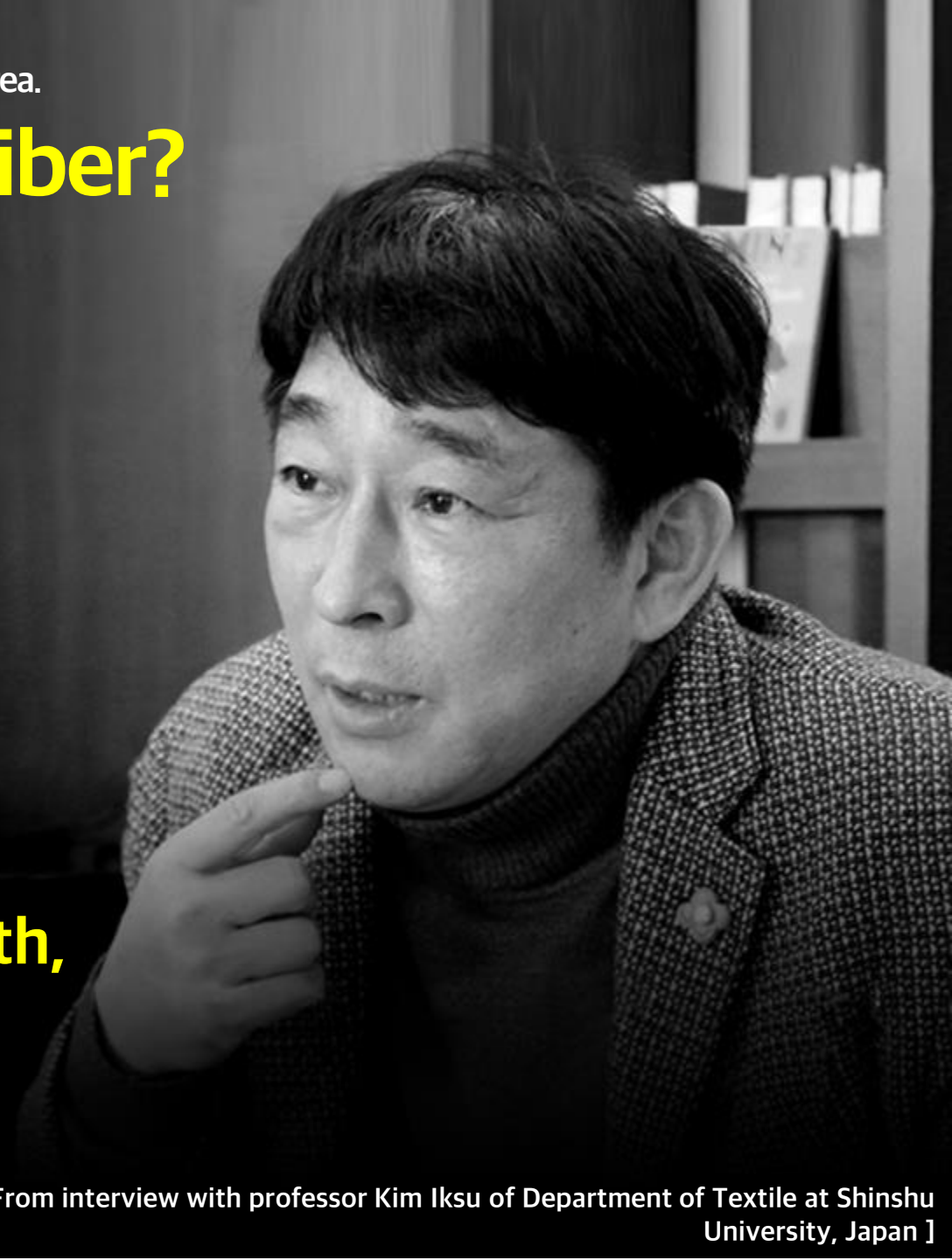
It is also used for RENERGIE mask pack from LANCOME that touches the skin directly.

This technology is used for smart devices that sends sounds but needs protection against dust and moisture.



We asked professor Kim Iksu, the most renowned professor in the fiber research area.

What kind of material is Nanofiber?



The thickness of a nano fiber is only a thousandth of a strand of hair.
Nanofiber is a material made by building these fibers sterically for a fishnet structure,
and nanofiber of 85% processing rate has both permeability and blockability.

The Nanofibers of LEMON have consistent thickness and pore size.
This means the ratio of the pores in the general area becomes very high,
which is relevant to permeability.

Because it touches the nose and the mouth, this fiber is very appropriate for masks where permeability is important

[From interview with professor Kim Iksu of Department of Textile at Shinshu University, Japan]

Long-lasting freshness from morning to evening!

The effectiveness of electrostatic masks decreases with each breath due to the moisture
Nanofiber Filter has great permeability, so you can feel fresh even after a long term use

Excellent filtering and permeability of Nanofiber

Nanofiber smart filter
blocks pollutants and enables easier breathing

Wearing mask all day causes skin trouble (C Newspaper)

Must wear permeable masks (M Newspaper)

Pimple breaks out due to wearing masks
(National Health Insurance Service blog)

If ou care about the skin, permeability is even more important.

There is moisture in our respiratory system
If a mask has bad permeability, the moisture from within cannot escape, which causes eczema

If you wear a mask for a **long time**,
you really need a permeable mask

Because we need to wear it all day, we made it lighter.

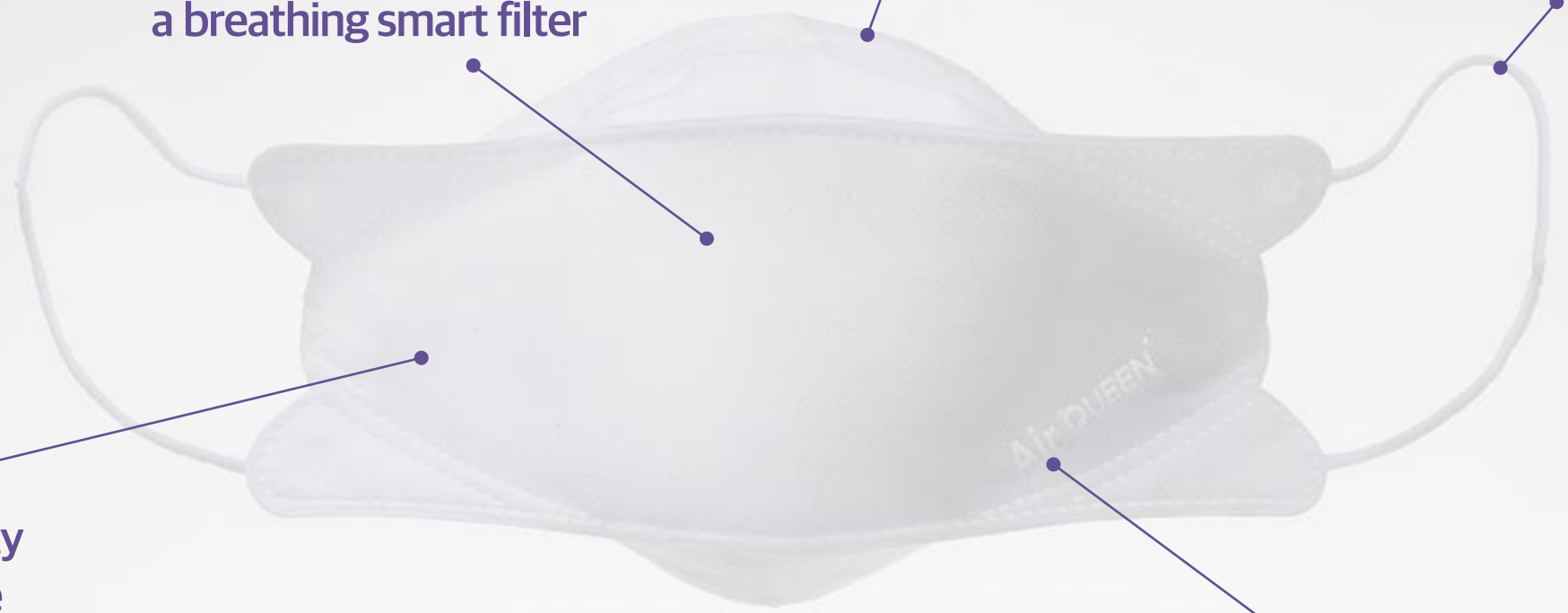
AirQUEEN Nano mask 3.71g

Lighter than a sheet of paper, so you won't even realize wearing it!

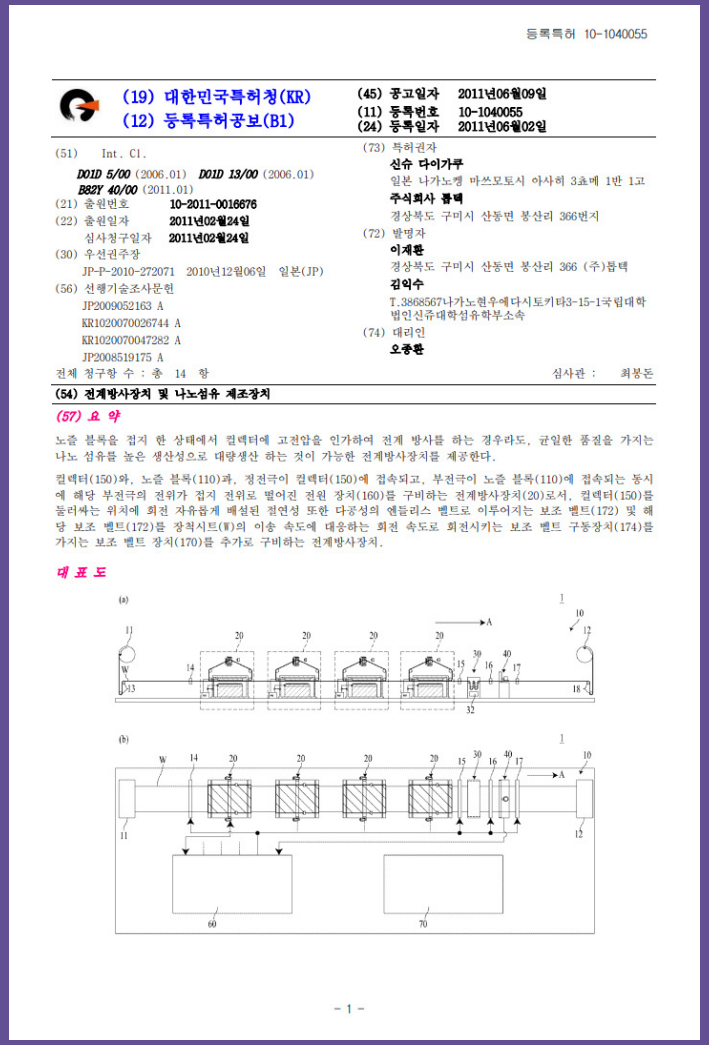
※ a sheet of paper = 4.72g

3D ergonomic design to fit perfectly on all face types.

Nose bridge prevents sliding or fogging up.



Individually wrapped for easy carrying and using



등록특허 10-1040055

(19) 대한민국특허청(KR)
(12) 등록특허공보(B1)

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D01D 5/00 (2006.01) *D01D 13/00* (2006.01)
B82Y 40/00 (2011.01)
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심사청구일자 2011년02월24일
(30) 우선권주장
JP-P-2010-272071 2010년12월06일 일본(JP)
(56) 선행기술조사문헌
JP2009052163 A
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전체 청구항 수 : 총 14 항

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주식회사 툼넥
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김익수
T.3868567나가노현우에다시토키타3-15-1국립대학법인신쥬대학섬유학부소속
(74) 대리인
오종문

심사관 : 최봉돈

(54) 전계방사장치 및 나노섬유 제조장치

(57) 요 약

노즐 블록을 접지 한 상태에서 컬렉터에 고전압을 인가하여 전계 방사를 하는 경우라도, 균일한 품질을 가지는 나노 섬유를 높은 생산성으로 대량생산 하는 것이 가능한 전계방사장치를 제공한다.

컬렉터(150)와, 노즐 블록(110)과, 정전극이 컬렉터(150)에 접속되고, 부전극이 노즐 블록(110)에 접속되는 동시에 해당 부전극의 전위가 접지 전위로 떨어진 전원 장치(160)를 구비하는 전계방사장치(20)로서, 컬렉터(150)를 둘러싸는 위치에 회전 자유롭게 배설된 절연성 또한 다공성의 엔들리스 벨트로 이루어지는 보조 벨트(172) 및 해당 보조 벨트(172)를 장척시트(W)의 이송 속도에 대응하는 회전 속도로 회전시키는 보조 벨트 구동장치(174)를 가지는 보조 벨트 장치(170)를 추가로 구비하는 전계방사장치.

대 표 도

- 1 -

- Patent Registration no. : 10-1040055
- Name of Invention:
  An electrospinning device and an apparatus for manufacturing nano-fiber

The Nanofiber Filter of AirQUEEN Nano Mask is manufactured with patent technology.

- Cutting-edge technology that mass-produces consistent nano fiber filters
- Selected as one of 100 technologies to lead Korea in 2020
- Approximately 50 patents around the world

Nanofiber Filter with excellent permeability and perfect protection from water and dust, used in AirQUEEN Masks, is the fruit of LEMON, a company listed through KOSDAQ, researching and developing nano fiber technology for 14 years


GERMAN CERT
Quality Management System Certificate

㈜레몬

본사(공장) 경상북도 구미시 산동면 산호대로 1105-65
대구공장) 대구광역시 달서구 성서로64길 26

ISO 9001:2015

인증범위

2차 전지 분리막, 나노화이버 및 나노 전자파 차단 부품류의 개발 및 제조
EMI 차폐시트의 제조

인증번호 : KorQ-163879

최초 인증일 : 2012년 11월 30일
인증 승인일 : 2018년 11월 23일
인증 만료일 : 2021년 11월 26일

Scheme Manager

GERMAN CERT
QUALITY MANAGEMENT SYSTEM


GERMAN CERT
Environmental Management System Certificate

㈜레몬

본사(공장) 경상북도 구미시 산동면 산호대로 1105-65
대구공장) 대구광역시 달서구 성서로64길 26

ISO 14001:2015

인증범위

2차 전지 분리막, 나노화이버 및 나노 전자파 차단 부품류의 개발 및 제조
EMI 차폐시트의 제조

인증번호 : KorE-165381

최초 인증일 : 2012년 11월 30일
인증 승인일 : 2018년 11월 23일
인증 만료일 : 2021년 11월 26일

Scheme Manager

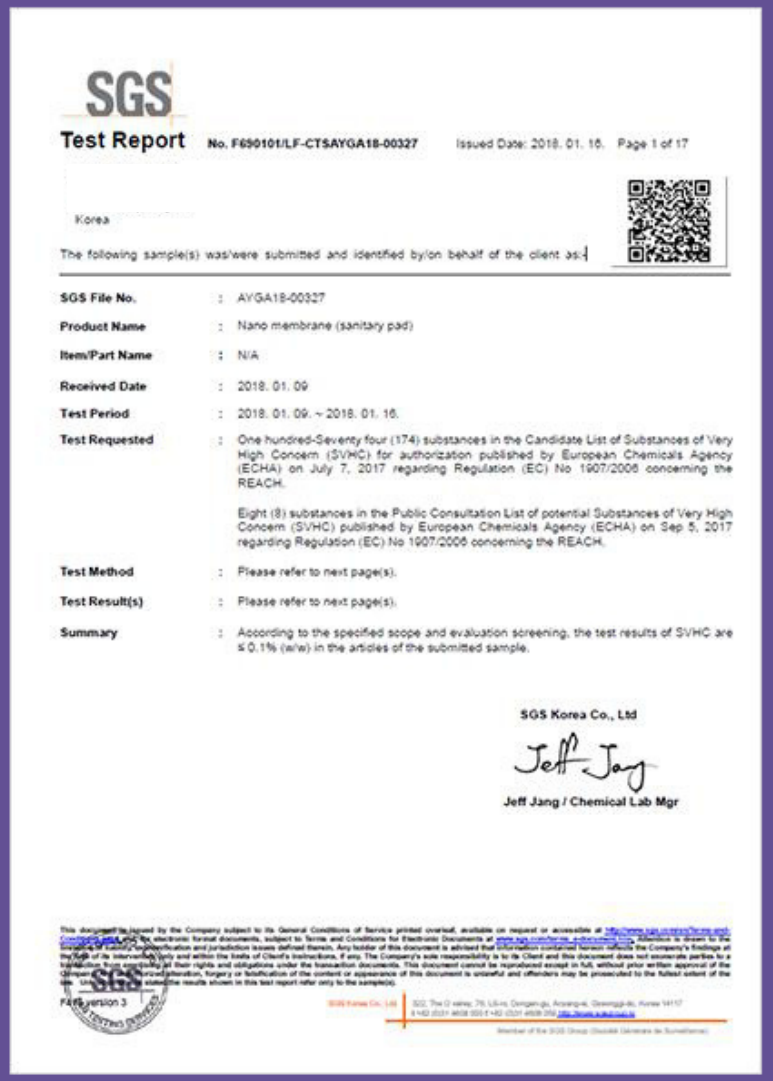
GERMAN CERT
ENVIRONMENTAL MANAGEMENT SYSTEM

GERMAN CERT
ISO 14001
REGISTERED

The Nanofiber Filter of AirQUEEN Mask is produced in a clean and sanitary facility.

- Proven suitable for ISO 9001 quality management system
- Proven suitable for ISO 14001 environment management system

The Nanofiber Filter used for AirQUEEN Masks is produced in a facility approved for environment management system, so it is safe and sanitary.



SGS

Test Report No. F690101/LF-CTSAYGA18-00327 Issued Date: 2018. 01. 16. Page 1 of 17

Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:

SGS File No.	:	AYGA18-00327
Product Name	:	Nano membrane (sanitary pad)
Item/Part Name	:	N/A
Received Date	:	2018. 01. 09
Test Period	:	2018. 01. 09. ~ 2018. 01. 16.
Test Requested	:	One hundred-Seventy four (174) substances in the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) on July 7, 2017 regarding Regulation (EC) No 1907/2006 concerning the REACH. Eight (8) substances in the Public Consultation List of potential Substances of Very High Concern (SVHC) published by European Chemicals Agency (ECHA) on Sep 5, 2017 regarding Regulation (EC) No 1907/2006 concerning the REACH.
Test Method	:	Please refer to next page(s).
Test Result(s)	:	Please refer to next page(s).
Summary	:	According to the specified scope and evaluation screening, the test results of SVHC are ≤ 0.1% (w/w) in the articles of the submitted sample.

SGS Korea Co., Ltd

Jeff Jang

Jeff Jang / Chemical Lab Mgr

The Nanofiber Filter of AirQUEEN Mask is approved by European SGS, REACH, and RoHS, and therefore is safe.

- Cadmium N/D
- Lead N/D
- Mercury N/D
- Hexavalent chromium N/D
- Other 182 categories N/D

RoHS

Metal material and harmful compound not detected

REACH COMPLIANCE

Organic solvent and compound not detected

SANQX

Organic solvent and compound not detected
Proven that metal material and harmful compound were not detected.

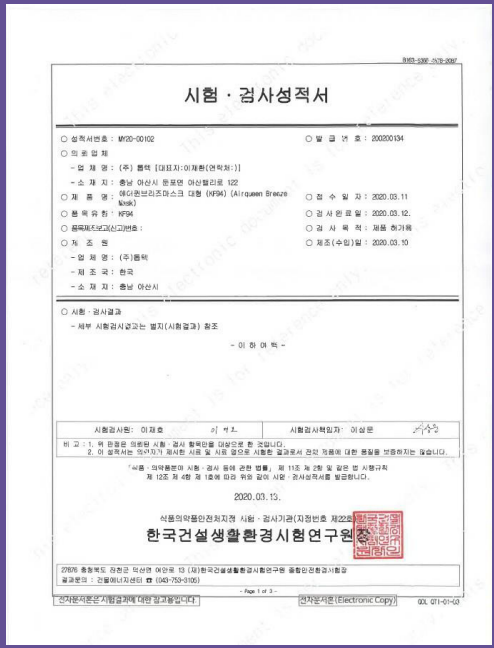
AirQUEEN Nano Mask is an industrial product that passed the tests of KEMTI and is [currently in process] of being approved by the MFDS

* Korea Environment Merchandise Testing Institute, KEMTI

AirQUEEN Nano Mask
is a product that applied for the KF approval at the MFDS early April of 202 after passing the test done by KEMTI, a testing institute designated by the MFDS.

It is manufactured with the same technology as Technoweb Disposable dustproof mask (KF94) from FTENE, the subsidiary company of TOPTEC, but if the manufacturer or brand is changed, the approval from the MFDS needs to be renewed, and until then, it cannot be publically distributed.

However, after the KF certification, 80% of the supply will be distributed as public, so there might be a shortage



시험 · 검사성적서

○ 성적서번호 : MY20-00102
○ 발 급 번 호 : 202000134
○ 의 뢰 업 체
- 업 체 명 : (주) 톱텍 [대표자:이재원(연락처:)]
- 소 재 지 : 충남 아산시 둔포면 아산밸리로 122
○ 제 품 명 : 에어퀸브리즈마스크 대형 (KF94) (Airqueen Breeze Mask)
○ 접 수 일 자 : 2020.03.11
○ 품목유형 : KF94
○ 검 사 완 료 일 : 2020.03.12.
○ 품목제조보고(신고)번호 :
○ 검 사 목 적 : 제품 허가용
○ 제 조 원
○ 제조(수입)일 : 2020.03.10
- 업 체 명 : (주)톱텍
- 제 조 국 : 한국
- 소 재 지 : 충남 아산시

○ 시험 · 검사결과
- 세부 시험검사결과는 별지(시험결과) 참조

- 이 하 여 백 -

시험검사원: 이재호 (서명 또는 인)
시험검사책임자: 이상문 (서명 또는 인)

비 고 : 1. 위 판정은 의뢰된 시험 · 검사 항목만을 대상으로 한 것입니다.
2. 이 성적서는 「식품의약품안전처장이 정하는 시험 및 시험 장소로 시험한 결과로서 전적 적용에 대한 품질을 보증하지는 않습니다.

「식품 · 의약품등의 시험 · 검사 등에 관한 법률」 제 11조 제 2항 및 같은 법 시행규칙 제 12조 제 4항 제 1호에 따라 위와 같이 시험 · 검사성적서를 발급합니다.

2020.03.13.

식품의약품안전처지정 시험 · 검사기관(지정번호 제228호)
한국건설생활환경시험연구원장

27876 충청북도 청천군 덕산면 어산로 13 (재)한국건설생활환경시험연구원 품질안전환경사업장
결과문의 : 건설에너지센터 ☎ (043-753-3105)

- Page 1 of 3 -

전자문서본은 시험결과에 대한 참고용입니다.
전자문서본(Electronic Copy)
KOL 011-01-03

We are currently also waiting for the result of N95 and CE certification.

Quality Indication According to Electric Products and Household Safety Law

- Product: AirQUEEN Mask
- Manufactured in: Korea
- Manufacturer: TOPTEC
- Distributor: TOPTEC
- Weight: 4.38g
- Product Type: Mask
- Expiry Date: 36 months
- Storage Directions: closed container, in room temperature (1~30℃)
- Entire Ingredients:
  felt (outer fabric, filter, inner fabric), plastic sheath wire, polypropylene ring, nylon strap

AirQUEEN Mask is an industrial product.

AirQUEEN Mask uses the Nanofiber Filter technology of LEMON
and is manufactured by TOPTEC.
Currently, the MFDS approval is being processed,
and when it is approved as sanitation mask,
80% of the product supply will be distributed as public distribution.

Air QUEEN

The Vital Shield for You and Your Loved Ones

TOPTEC

NANO FILTER TECHNOLOGY

Functional nose support
High adhesion
prevent falling off and fogging
of the glasses

Nano fiber filter

High elasticity ear band
Maintains elasticity as a
new one after a long
period of using it

light weight
4.38g, light and
comfortable all day

UV protection
Block more than 90% of
UV rays

**3 layer structure three
dimensional design**
Comfortable wearing
feeling by covering
down to the chin

TOPTEC

Introducing Air QUEEN mask from Korea
It's a mask with a difference

The upcoming Korean brand that has manufactures its products under the guidance of researchers and analyses and understands the problems of its consumers. Air QUEEN tries to bring in the best of technology and information to provide wholesome benefit to customers.

- Thin and light
- Nano fiber filter
- Ergonomic design

TOPTEC

xperien h bvious ifference ı h i queen mask

It cover from the nose to the chine **completely**, and efficiently blocks the inhaling of the fine-dust through the adhesion structure, also show **high st l lity** when wearing one.

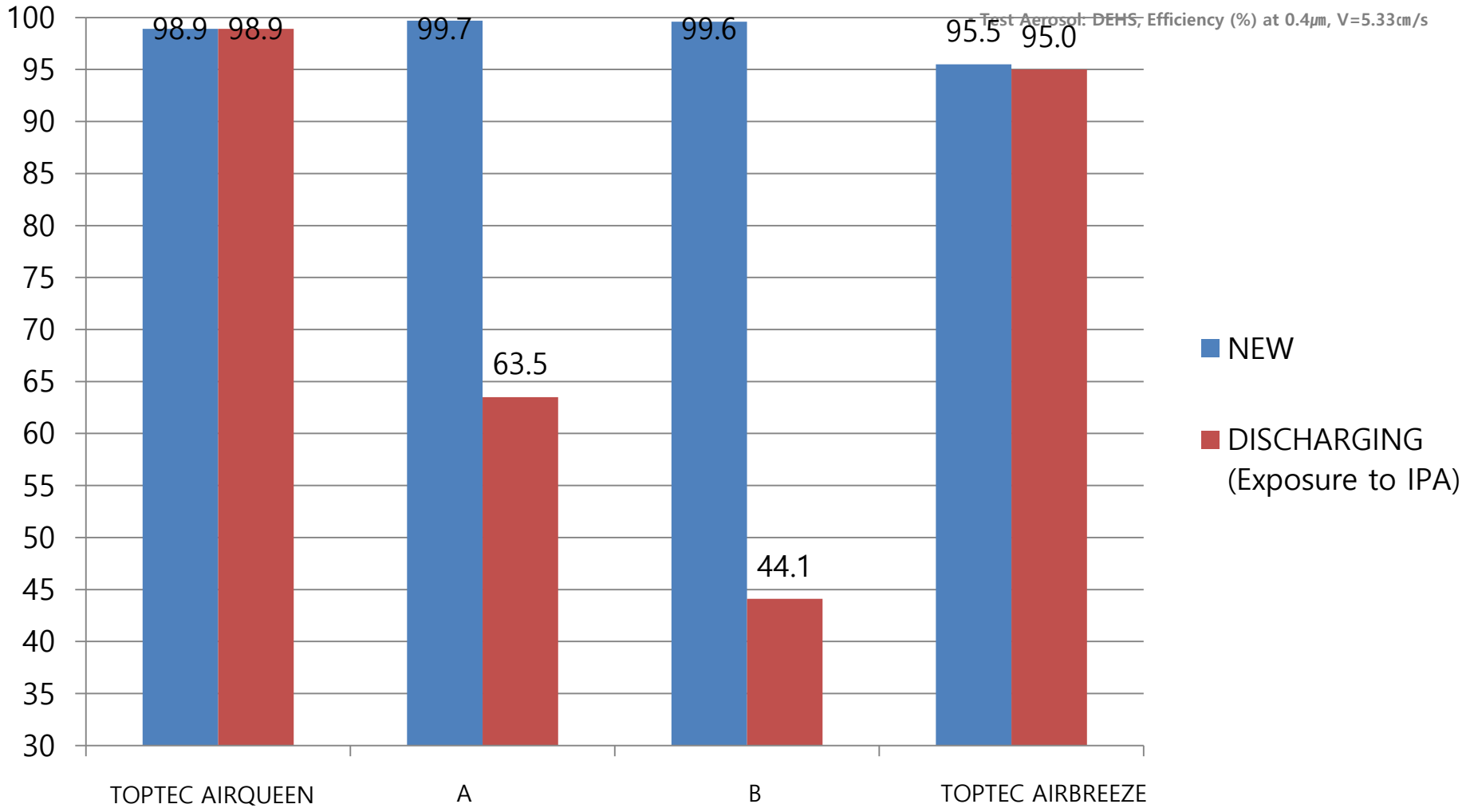
Completes outside harmful substance completely through **Nano fabric filter.**

Comfortable wearing feeling by covering down to the chi n through **3 layer structure three dimensional des g**

Lighter than 1 piece of A4 paper!

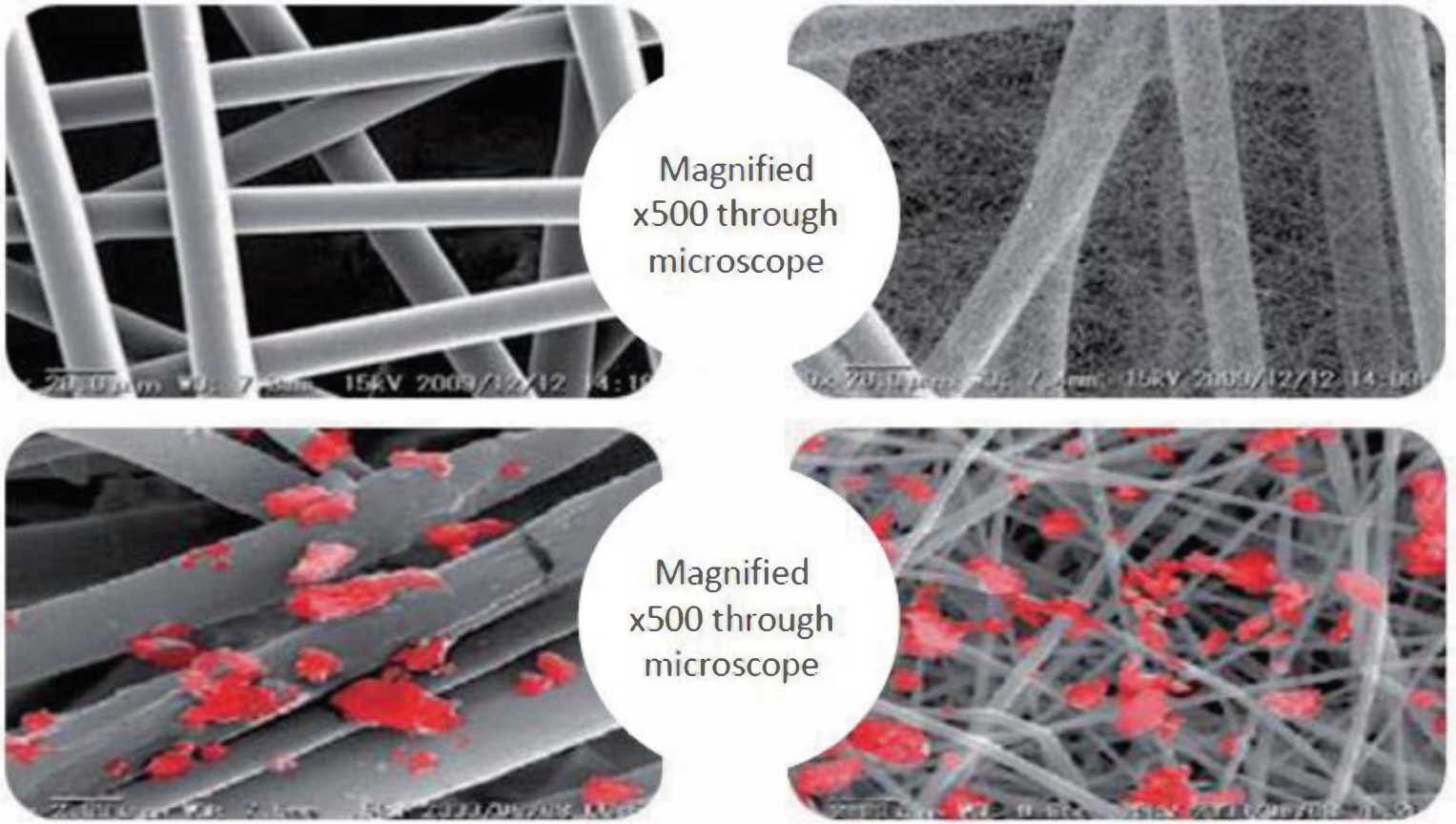
TOPTEC

MASK COMPARISON TEST



TOPTEC

THE DIFFERENCE BETWEEN NANO FILTER AND NORMAL FILTER



TOPTEC

THE DIFFERENCE BETWEEN NANO FILTER AND NORMAL FILTER

The pre-existing static filter

The pre-existing static filter uses the method where the dust sticks to the fabric due to static.
As a characteristics of the static, if moisture occurs due to breathing or is brought in from the outside, the filtering efficiency drops drastically.

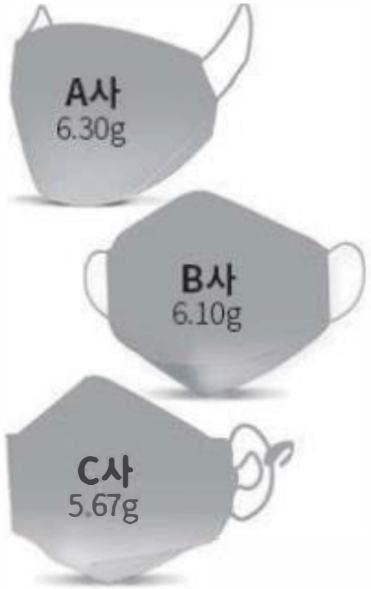
Our company's Nano fiber filter

Fine-dust has been filtered on the densely tangled Air queen Nano fabric.
It filters through a Nano fabric structured not instead of static,
it maintains high filtering efficiency for 24 hours even when it contacts with moisture.

TOPTEC

LIGHTER THAN ANY OTHER MASK

It is light and comfortable all day, as if you are not wearing one.



Pre-existing mask over 5g

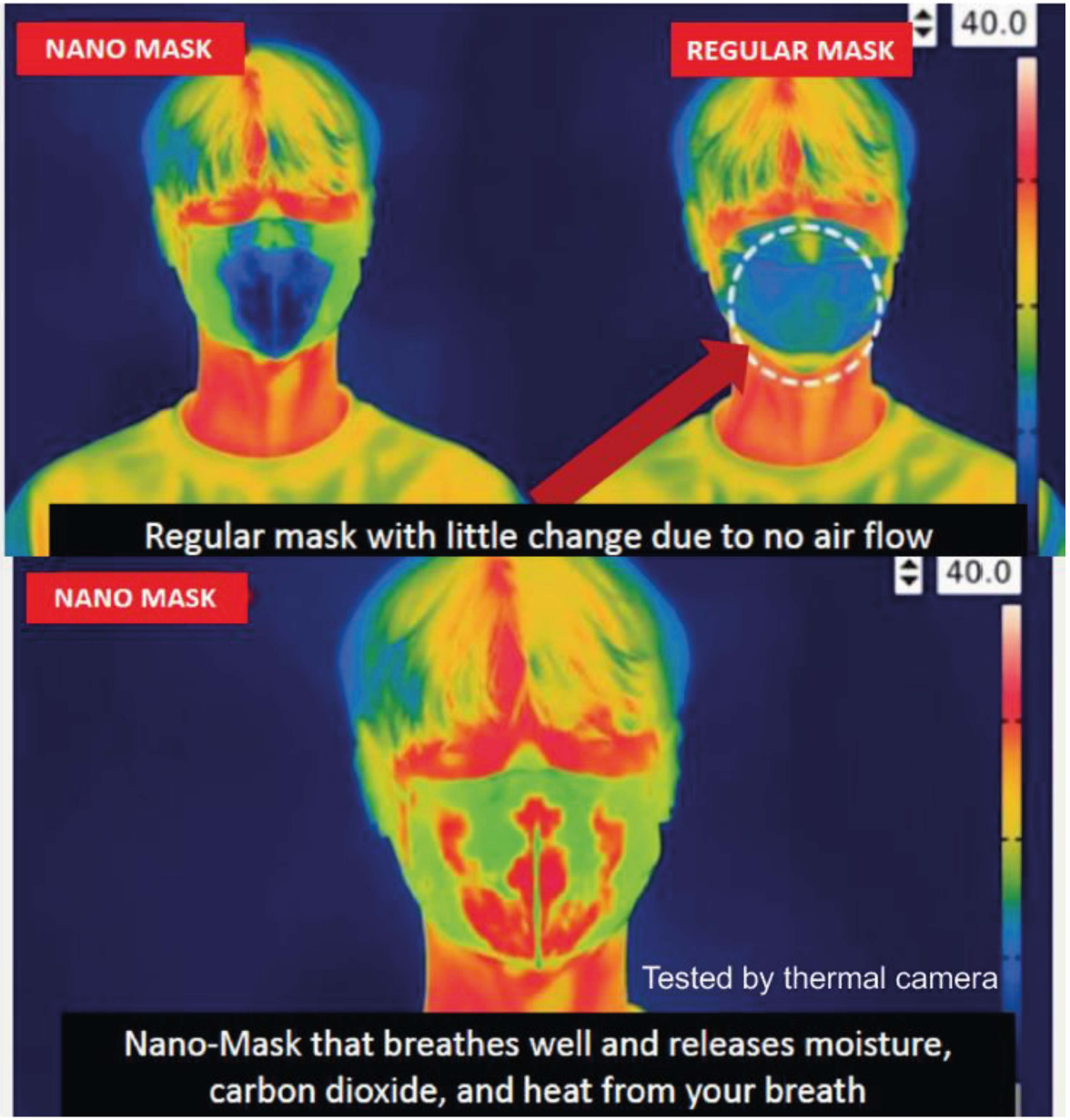
Air queen mask, lighter than 1 piece of A4 paper! 4.38g
(A4 paper _ 4.72g)

The pre-existing Mask is hard to breathe in because it's too thick.

Next generation new material Nano Membrane that lets the air through

TOPTEC

BREATHING FIBER



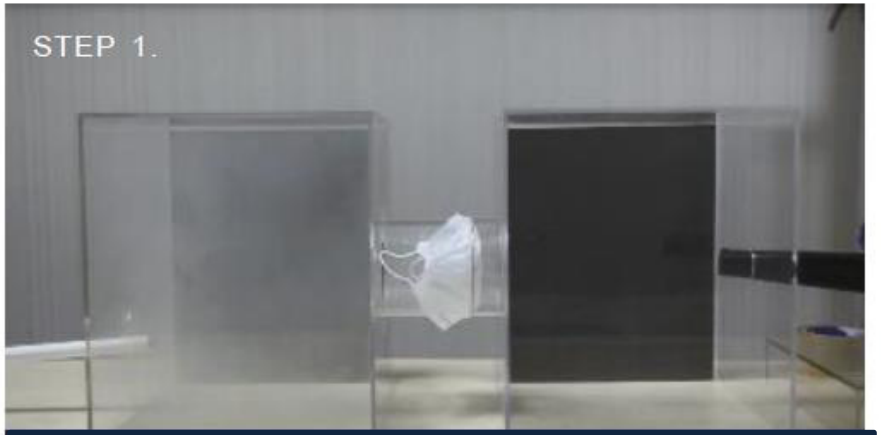
Most existing masks are less efficient due to moisture generated when breathing in an electrostatic manner.

NANO-membreane is 0.1 μm larger than air particles and smaller than harmful particles, and is filtered by the nanofiber structure itself, allowing for long wear and breathability, blocking, and durability.

‘Nano Membrane’

TOPTEC

NICOTINE FILTERING TEST



Fill the smoke on the left cube after place the mask between two cubes

Vacume the smoke from the other side of cube

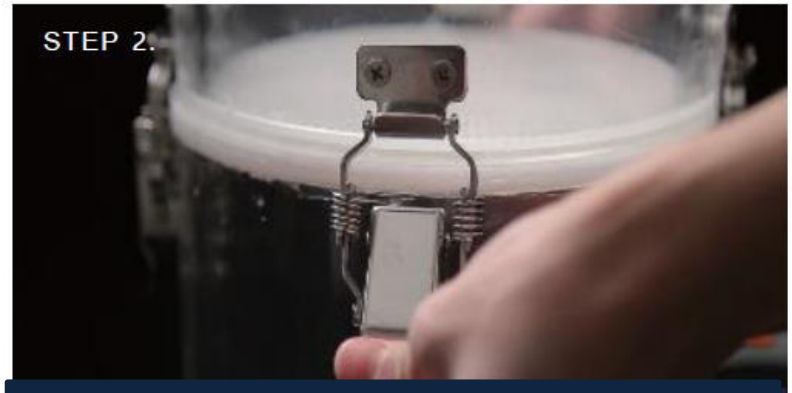
Able to see the nicotine on the nano filter

Face side is still clean after filtered from nanofilter

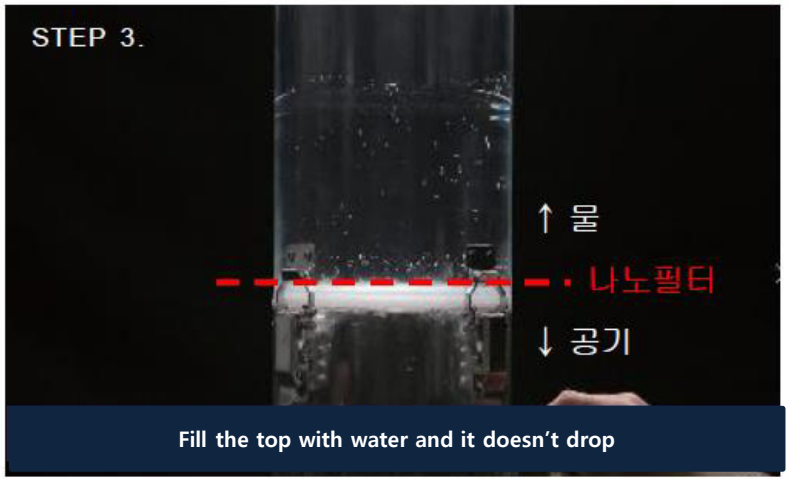
TOPTEC

AIR VENTILATION TEST

Actual filter in the mask



Divided top and bottom with nano filter



Fill the top with water and it doesn't drop

Air go through to the top from bottom

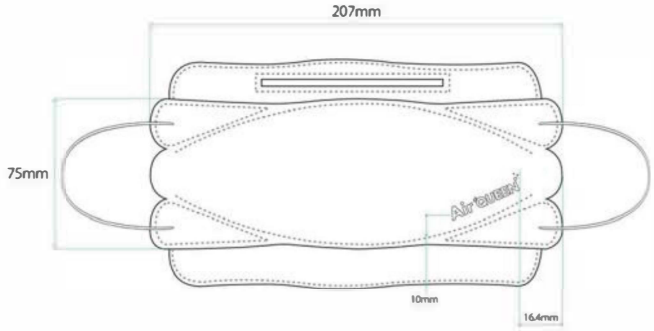
Water proof
But Real vent of Air

TOPTEC

STEP 1
Hang the ear band to ears and adjust dotted line to your jawline

STEP 2
Check if both jawline stick to your mask

STEP 3
Press the nose wire and make sure if it fits the face



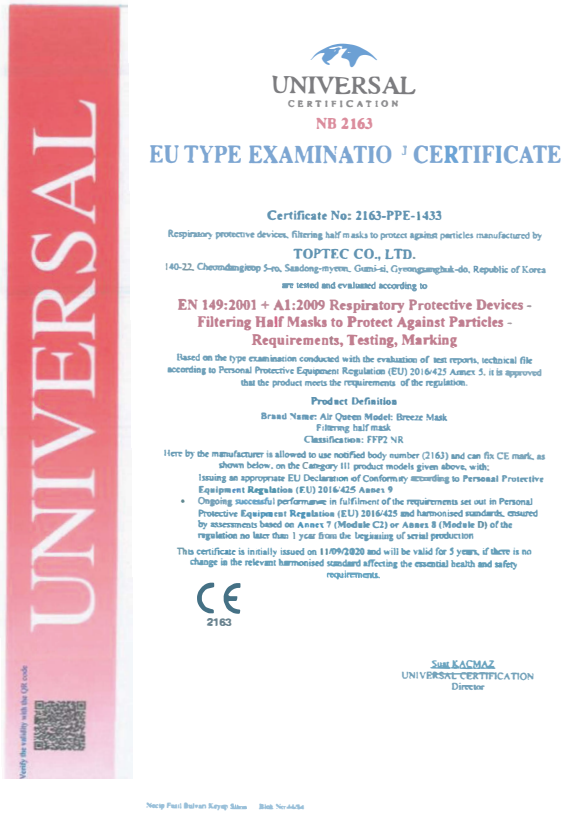
Cautions

- Do not use in environment of oxygen concentration that is less than 18%
- Do not use if the inner side is polluted
- Do not use if the mask is out of shape
- Do not wash and reuse the mask
- In case of pregnant woman, respiratory and cardiovascular disease patient, kids, the old and the infirm, please consult your doctor for advice if breath is not comfortable after using

TOPTEC

CERTIFICATIONS

CE CERTIFICATION



UNIVERSAL

UNIVERSAL
CERTIFICATION

NB 2163

EU TYPE EXAMINATIO] CERTIFICATE

Certificate No: 2163-PPE-1433

Respiratory protective devices, filtering half masks to protect against particles manufactured by

TOPTEC CO., LTD.

140-22, Cheomdangieop 5-ro, Sandong-myeon, Gumi-si, Gyeongsangbuk-do, Republic of Korea

are tested and evaluated according to

EN 149:2001 + A1:2009 Respiratory Protective Devices - Filtering Half Masks to Protect Against Particles - Requirements, Testing, Marking

Based on the type examination conducted with the evaluation of test reports, technical file according to Personal Protective Equipment Regulation (EU) 2016/425 Annex 5, it is approved that the product meets the requirements of the regulation.

Product Definition

Brand Name: Air Queen Model: Breeze Mask
Filtering half mask
Classification: FFP2 NR

Here by the manufacturer is allowed to use notified body number (2163) and can fix CE mark, as shown below, on the Category III product models given above, with;

- Issuing an appropriate EU Declaration of Conformity according to Personal Protective Equipment Regulation (EU) 2016/425 Annex 9
- Ongoing successful performance in fulfilment of the requirements set out in Personal Protective Equipment Regulation (EU) 2016/425 and harmonised standards, ensured by assessments based on Annex V (Module C2) or Annex II (Module D) of the regulation no later than 1 year from the beginning of serial production

This certificate is initially issued on 11/09/2020 and will be valid for 5 years, if there is no change in the relevant harmonised standard affecting the essential health and safety requirements.

CE
2163

Suat KACMAZ
UNIVERSAL CERTIFICATION
Director

Verify the validity with the QR code

Nerip Pearl Bulvarı Kayap Sitesi Blok No:44/84

Verify Issued Certificate

Certificate Nr | Company Name (Min First 3 Letters) | SEARCH

Please do not request e-mail verification in case you can verify the certificate with scanning QR Codes. Please compare the information results on the query result on the web page and on the certificate on your side when you make query by QRCode or manual.

The certificate holder, certificate number, standard and model name (if exists) must match.

Query Results

Certificate Holder	TOPTEC CO., LTD.
Certificate Nr	2163-PPE-1433
Certificate Type	EN 149+A1:2009 Module B, EU Type Examination Certificate
Model Name	Air Queen / Breeze Mask FFP2 NR
Valid Through	11 / 09 / 2020
Valid Until	10 / 09 / 2025
Issue Date	11 / 09 / 2020
Status	Valid

TOPTEC

CERTIFICATIONS

510K FDA CLEARED

2020

CERTIFICATE OF REGISTRATION

This certifies that:

TOPTEC CO., LTD.
122 Asanvalley-Ro
Dunpo-Myeon
Asan-Si Chungcheongnamdo, KR 310409

is registered with the U.S. Food and Drug Administration for FY 2020 pursuant to Title 21, 807 et seq. of the United States Code of Federal Regulations:

Establishment Registration:	**3016790437**
Device Classification Name:	**MASK, SURGICAL**
Product Code:	**FXX**
Regulation Number:	**878.4040**

Registrar Corp
144 Research Drive, Hampton, Virginia, 23666, USA
Telephone: +1-757-224-0177 • Fax: +1-757-224-0179

Registrar Corp will confirm that such registration remains effective upon request and presentation of this certificate until the end of the year stated above, unless said registration is terminated after issuance of this certificate. Registrar Corp makes no other representations or warranties, nor does this certificate make any representations or warranties to any person or entity other than the named certificate holder, for whose sole benefit it is issued. This certificate does not denote endorsement or approval of the certificate-holder's device or establishment by the U.S. Food and Drug Administration. Registrar Corp assumes no liability to any person or entity in connection with the foregoing.

Pursuant to 21 CFR 807.39, "Registration of a device establishment or assignment of a registration number does not in any way denote approval of the establishment or its products. Any representation that creates an impression of official approval because of registration or possession of a registration number is misleading and constitutes misbranding."

The U.S. Food and Drug Administration does not issue a certificate of registration, nor does the U.S. Food and Drug Administration recognize a certificate of registration. Registrar Corp is not affiliated with the U.S. Food and Drug Administration.

Registrar Corp
144 Research Drive, Hampton, Virginia, 23666, USA
Telephone: +1-757-224-0177 • Fax: +1-757-224-0179
info@registrarcorp.com • www.registrarcorp.com

David Lenhart
Executive Director
Registrar Corp
Dated: May 15, 2020

TOPTEC CO., LTD.	KOREA, REPUBLIC OF	3016790437	2020
• Mask, Surgical - AIR COOL GREEN MASK; AIR QUEEN; AIR QUEEN BREEZE; AIR QUEEN NANO MASK; Nano Mask; PURE MASK; TECHNO WEB; TECHNOWEB			Manufacturer

Establishment Registration & Device Listing

FDA Home • Medical Devices • Databases

New Search | Back To Search Results

Proprietary Name:	AIR COOL GREEN MASK; AIR QUEEN; AIR QUEEN BREEZE; AIR QUEEN NANO MASK; Nano Mask; PURE MASK; TECHNO WEB; TECHNOWEB
Classification Name:	MASK, SURGICAL
Product Code:	FXX
Device Class:	2
Regulation Number:	878.4040
Medical Specialty:	General & Plastic Surgery
Registered Establishment Name:	TOPTEC CO., LTD.
Registered Establishment Number:	3016790437
Premarket Submission Number:	K172500
Owner/Operator:	TOPTEC Co., LTD.
Owner/Operator Number:	10072713
Establishment Operations:	Manufacturer

TOPTEC

HALAL CERTIFICATIONS

한국할랄인증서
CERTIFICATE OF KOREA HALAL

korea halal

인증번호 (Certification No):KHA-20F-00362904

한국할랄인증원(KHA)은 아래 조직에서 생산되는 제품에 대하여 다음 인증규격의 요구사항에 적합함을 인증합니다.
Korea Halal Authority(KHA) certifies that product manufactured by the Below organization complies with the requirements and certification scope of the following certification standards.

회사명(Name of Company): 주식회사 톱텍/ TOPTEC CO., Ltd

회사주소(Company Address): 충남 아산시 둔포면 이산밸리로 122
122, Asanvalley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea

인증제품명(Name of Products): 나노 마스크(Air Queen)/ Nano Mask(Air Queen)

인증규격(Certification standard): KHAS 29000-할랄 공산용품 일반 규정
KHAS 29000-General Standards For HALAL Industrial Products

이 인증서에 명시되지 않은 다른 제품들은 할랄 제품으로 인정하지 않습니다.
We do not approve of any other products not specified in this certificate as Halal.

인증발행일자(Certification Date of issue): 29.04.2020
인증만료일자(Certification Expiration Date): 28.04.2021

대 표 이 사
Chief Executive Officer
Safiah Weon-Suk Kim

한국할랄인증원
KOREA HALAL AUTHORITY

TOPTEC

NELSON IN/EXHALATION TEST REPORT

Nelson Labs
A Sotera Health company

Sponsor:
Kyunghan Chung
Toptec Co., Ltd.
140-22, Cheomdangieop 5-ro, Sandong-myeon
Gumi-si, Gyeongsangbuk-do, 39171
KOREA, REPUBLIC OF

Determination of Inhalation and Exhalation Resistance for Air-Purifying Respirators Final Report

Test Article: Air Queen Breeze Mask
Study Number: 1295788-S01
Study Received Date: 04 May 2020
Testing Facility: Nelson Laboratories, LLC
6280 S. Redwood Rd.
Salt Lake City, UT 84123 U.S.A.
Test Procedure(s): Standard Test Protocol (STP) Number: STP0145 Rev 05
Deviation(s): None

Summary: This procedure was performed to evaluate the differential pressure of (composered air-purifying particulate respirators in accordance with 42 CFR Part 84.180. The air exchange differential or breathability of respirators was measured for inhalation resistance using NIOSH procedure TEB-APR-STP-0007 and exhalation resistance with NIOSH procedure TEB-APR-STP-0003. The differential pressure technique is a simple application of a basic physical principle employing a water manometer differential upstream and downstream of the test material, at a constant flow rate.

According to 42 CFR Part 84.64, pretesting must be performed by all applicants as part of the application process with NIOSH. Results seen below are part of that pretesting and must be submitted to and accepted by NIOSH for respirator approval.

The inhalation resistance criteria as stated in 42 CFR Part 84.180 is an initial inhalation not exceeding 35 mm water column height pressure. The test articles submitted by the sponsor conform to this NIOSH criterion for airflow resistance.

The exhalation resistance criteria as stated in 42 CFR Part 84.180 is an initial exhalation not exceeding 25 mm water column height pressure. The test articles submitted by the sponsor conform to this NIOSH criterion for airflow resistance.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Sean Shepherd electronically approved for Curtis Gerow
Study Director

27 May 2020, 17:39 (+00:00)
Study Completion Date and Time

Results:

Test Article Number	Inhalation Resistance (mm H_2O)	Exhalation Resistance (mm H_2O)
1	8.8	8.1
2	8.4	8.3
3	8.2	7.9

Test Method Acceptance Criteria: The resistance measurement for the reference plate must be within ± 3 standard deviations of the mean established in the control chart.

Procedure: A complete respirator was mounted to a test fixture comprised of a metal plate with an approximate 3.5 inch diameter hole in the center to allow airflow to reach the mask. The sample holder was assembled by placing a Plexiglas collar around the test fixture and topping with another metal disc with a 3.5 inch opening in the center. The sample holder is held tightly together with clamps and connected to an air source. The manometer is attached to the sample holder by a connection port on the Plexiglas collar.

Before testing, the manometer was zeroed and the back pressure in the sample holder checked and verified to be acceptable. Resistance measurements were taken with a manometer capable of measuring at least 6 inches of water. For inhalation testing, a negative airflow (vacuum) was applied. For exhalation testing, a positive airflow (compressed air) was used. Airflow was passed through the sample holder at approximately 85 ± 2 liters per minute (L/min).

TOPTEC

NELSON NACL AEROSOL TEST REPORT

Nelson Labs.
A Sotera Health company

Sponsor
Kyunghan Chung
Toptec Co., Ltd.
140-22, Cheomdangiseop 5-ro, Sandong-myeon
Gumi-si, Gyeongsangbuk-do, 39171
KOREA, REPUBLIC OF

Sodium Chloride (NaCl) Aerosol Test Final Report

Test Article: Air Queen Breeze Mask
Study Number: 1295789-S01
Study Received Date: 04 May 2020
Testing Facility: Nelson Laboratories, LLC
6280 S. Redwood Rd.
Salt Lake City, UT 84123 U.S.A.
Test Procedure(s): Standard Test Protocol (STP) Number: STP0014 Rev 09
Deviation(s): None

Summary: This procedure was performed to evaluate particulate filter penetration as specified in 42 CFR Part 84 and TEB-APR-STP-0059 for requirements on a N95 respirator. Respirators were conditioned then tested for particle penetration against a polydispersed, sodium chloride (NaCl) particulate aerosol. The challenge aerosol was dried, neutralized, and passed through the test article at a concentration not exceeding 200 mg/m^3. The initial airflow resistance and particle penetration for each respirator was determined.

According to 42 CFR Part 84.64, pretesting must be performed by all applicants as part of the application process with NIOSH. Results seen below are part of that pretesting and must be submitted to and accepted by NIOSH for respirator approval.

All test method acceptance criteria were met. Testing was performed in compliance with US FDA good manufacturing practice (GMP) regulations 21 CFR Parts 210, 211 and 820.

Robert Dieker electronically approved for Curtis Gerow
Study Director

02 Jun 2020 15:37 (+00:00)
Study Completion Date and Time

Results: The NIOSH N95 filter efficiency as stated in 42 CFR Part 84.181 is a minimum efficiency for each filter of ≥95% (≤5% penetration). The test articles submitted by the sponsor conform to the NIOSH N95 criteria for filter efficiency.

Test Article Number	Corrected* Initial Airflow Resistance (mm H_2O)	Maximum Particle Penetration (%)	Filtration Efficiency (%)
1	14.5	1.59	98.41
2	15.8	1.54	98.46
3	15.4	1.88	98.12
4	13.4	1.93	98.07
5	11.5	3.79	96.21
6	12.2	2.98	97.02
7	12.4	3.40	96.60
8	12.6	2.42	97.58
9	12.6	2.06	97.94
10	12.1	3.77	96.23
11	12.0	3.97	96.03
12	13.2	2.04	97.96
13	14.4	2.12	97.88
14	13.6	2.46	97.54
15	2.0	0.306	99.694
16	11.9	2.43	97.57
17	14.4	2.03	97.97
18	14.2	2.47	97.53
19	12.7	2.14	97.86
20	12.0	2.25	97.75

* The final airflow resistance value for each test article was determined by subtracting out the background resistance from the system.

Test Method Acceptance Criteria: The filter tester must pass the "Tester Set Up" procedure. The airflow resistance and particle penetration of the reference material must be within the limits set by the manufacturer.

TOPTEC

TUV TEST REPORT

DMT - Prüf- und Ergebnisprotokoll

DMT

Prüfung Corona SARS-Cov-2-Virus Pandemie Atemschutzmasken

auf Grundlage Prüfgrundsatz Rev. 1 vom 26.03.2020 - erstellt von der DEKRA Testing and Certification GmbH und dem INSTITUT für Arbeitsschutz (IFA) der Deutschen gesetzlichen Unfallversicherung

Berichts Nr.: 8003019226-1-Rev. 01	Prüfzeitraum: 13.06. - 16.06.2020		Datum Prüfungsannahme: 08.06.2020
Prüfung beauftragt durch: TÜV NORD CERT GmbH, Langemarckstraße 20, 45141 Essen	Endkunde: WardWiz Deutschland GmbH, Ytenburger Str. 9, 81184 Karben	Unterschrift Prüfer: 19.06.2020 (Glätzer)	Unterschrift Leiter Prüflabor: 19.06.2020 (Schamberg)

Angaben zum Prüfling

Modell/Typbezeichnung (*):	MNS
Ausführung:	Naseflügel, Ohrschlaufen
Hersteller:	TOPTEC Co. Ltd.
Modellbezeichnung:	Air Queen Nanofiber Filter Mask
Ident.-Nr./Artikelnummer:	k. A.

Lieferumfang

Verpackungsart:	Kunststoffbeutel
Verpackungseinheit:	1 Stück
Informationsbroschüre:	auf Verpackung gedruckt

Prüfungen und Test-Ergebnisse

1. Sichtprüfung

Kriterium	Bewertung
Verpackungsart:	Kunststoffbeutel
Verpackungseinheit:	1 Stück
Vollpackung sichtbar:	i. O.
Verpackung sichtbar:	i. O.
Zusatz/ CPA:	i. O.
Beurteilung:	**bestanden**

2. Anlegeprüfung

Kriterium	Bewertung
CPA leicht anzulegen	i. O.
CPA leicht abzulegen	i. O.
Komfort der Kopfbänderung	i. O.
Gesichtsfeld	i. O.
offensichtliche Undichtigkeiten:	nein
wahrnehmbare Luftströmung:	nein
Beurteilung:	**bestanden**

3. Zustand nach Temperatur/Feuchtekonditionierung (24 h bei 70°C)

Zustand CPA:	formstabil, Zustand unbeschadet
Beurteilung:	**bestanden**

4. Zustand nach Gebrauchssimulation

Zustand CPA:	formstabil, Zustand unbeschadet
Beurteilung:	**bestanden**

5. Durchlass-Prüfung (Max.-Wert Prüflinge 1-3)

Paraffinöl-Konzentration nach Maske - Reingas C_2 [mg/m³]:	0,42
Paraffinöl-Konzentration vor Filter - Rohgas C_1 [mg/m³]:	19,85
Durchlassgrad P [%]:	2,1
Sollwertabgleich:	Pmax < 6%
Beurteilung:	bestanden
Beurteilung:	**bestanden**

6. Prüfung CPA mit Ausatemventil

Prüfung:	Ergebnis:	Beurteilung:
Ergebnis Zugversuch am Ventil mit 10 N:	hier nicht anwendbar	-
Funktionsprüfung nach Belastung bei 300 l/min:	hier nicht anwendbar	-

7. Prüfung des Atemwiderstandes CPA

Max.-Wert Ausatemwiderstand bei 160 l/min (Sollwert ≤ 3 mbar)

Blickrichtung:	Druckverlust	Beurteilung
gerade aus	182 Pa	bestanden
nach links	-	-
nach rechts	-	-
nach oben	-	-
nach unten	-	-

Max.-Wert Einatemwiderstand bei 95 l/min (Sollwert ≤ 3 mbar)

Blickrichtung:	Druckverlust	Beurteilung
gerade aus	165Pa	bestanden

Gesamtbeurteilung der geprüften CPA: bestanden

8 Prüfung der Kennzeichnung

Kriterium	Prüfung	Bewertung
Herstelleridentifikation:	TOPTEC Co. Ltd.	o. k.
Warenidentifikation:	MNS	o. k.
Informationsschrift:	auf Verpackung gedruckt	o. k.
Aufsetzanleitung	auf Verpackung gedruckt	o. k.
Hinweise zur Verwendung:	auf Verpackung gedruckt	o. k.
Beurteilung:	**bestanden**	

Gesamtbeurteilung der geprüften CPA: bestanden

DMT GmbH & Co. KG
Am TÜV 1
45307 Essen / Germany
TÜV NORD GROUP

5. Durchlass-Prüfung (Max.-Wert Prüflinge 1-3)

Paraffinöl-Konzentration nach Maske - Reingas C_2 [mg/m³]:	0,42
Paraffinöl-Konzentration vor Filter - Rohgas C_1 [mg/m³]:	19,85
Durchlassgrad P [%]:	2,1
Sollwertabgleich:	Pmax < 6%
Beurteilung:	bestanden

Beurteilung: **bestanden**

7. Prüfung des Atemwiderstandes CPA

Max.-Wert Ausatemwiderstand bei 160 l/min (Sollwert ≤ 3 mbar)

Blickrichtung:	Druckverlust	Beurteilung
gerade aus	182 Pa	bestanden
nach links	-	-
nach rechts	-	-
nach oben	-	-
nach unten	-	-

Max.-Wert Einatemwiderstand bei 95 l/min (Sollwert ≤ 3 mbar)

Blickrichtung:	Druckverlust	Beurteilung
gerade aus	165Pa	bestanden

Gesamtbeurteilung der geprüften CPA:

TOPTEC

SGS REPORT

SGS

Test Report No. FS50101/LF-CTSAYHA20-11682 Issued Date: 2020. 09. 03 Page 1 of 2

TOPTEC CO., LTD
122 Asanvalley-ro, Dunpo-myeon
Asan-si, Chungcheongnam-do
Korea

The following sample(s) was/were submitted and identified by/on behalf of the client as:-

SGS File No.	:	AYHA20-11682
Product Name	:	AIRQUEEN BREEZE MASK
Item No./Part No.	:	N/A
Received Date	:	2020. 08. 31
Test Period	:	2020. 08. 31 to 2020. 09. 03
Report Comments	:	The test part was selected by client's request.
Test Results	:	For further details, please refer to following page (s)

SGS Korea Co., Ltd.

Tommy Oh / Chemical Lab Mgr

SGS Korea Co., Ltd. 322, The O'valley, 76, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117 t +82 (0)31 4800 000 f +82 (0)31 4800 058 http://www.sgsgroup.kr

SGS

Test Report No. FS50101/LF-CTSAYHA20-11682 Issued Date: 2020. 09. 03 Page 2 of 2

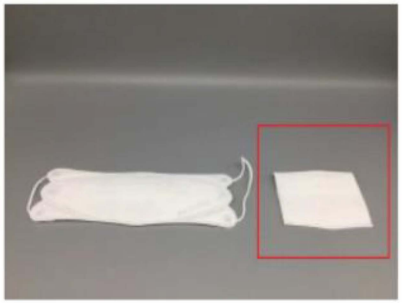
Sample No.	:	AYHA20-11682.001
Sample Description	:	White fabric (outer+inner+filter)
Item No./Part No.	:	N/A
Materials	:	N/A

DMAc (N,N-Dimethylacetamide)

Test Item(s)	Unit	Test Method	MDL	Results
DMAc (N,N-Dimethylacetamide)	mg/kg	Ultra sonic extraction with Methylene Chloride / GC-MS	10	N.D.

NOTE:
(1) N.D. = Not detected (< MDL)
(2) mg/kg = ppm
(3) MDL = Method Detection Limit
(4) - = No regulation
(5) "" = Qualitative analysis (No Unit)
(6) Negative = Undetectable / Positive = Detectable
(7) The results shown in this test report refer only to the sample(s) tested unless otherwise stated. This test report is not related to Korea Laboratory Accreditation Scheme.

Picture of Sample as Received :



AYHA20-11682.001

"" End of Report ""

SGS Korea Co., Ltd. 322, The O'valley, 76, LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, Korea 14117 t +82 (0)31 4800 000 f +82 (0)31 4800 058 http://www.sgsgroup.kr

TOPTEC

CERTIFICATIONS

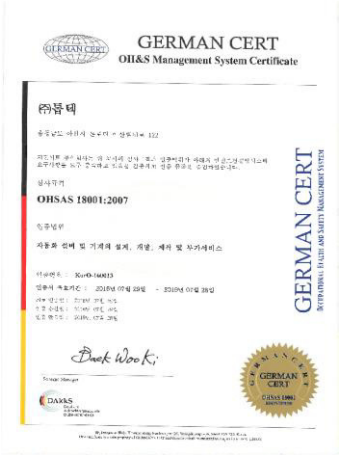
ISO 9001


GERMAN CERT
Quality Management System Certificate
㈜톱텍
ISO 9001:2015
자동화 설비 및 기계의 설계, 제작 및 판매
GERMAN CERT
QUALITY MANAGEMENT SYSTEM

ISO 14001


GERMAN CERT
Environmental Management System Certificate
㈜톱텍
ISO 14001:2015
자동화 설비 및 기계의 설계, 제작 및 판매
GERMAN CERT
ENVIRONMENTAL MANAGEMENT SYSTEM

OHSAS 18001


GERMAN CERT
OH&S Management System Certificate
㈜톱텍
OHSAS 18001:2007
자동화 설비 및 기계의 설계, 제작, 판매 및 유지서비스
GERMAN CERT
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

ISO 13485


KMR
Certificate of Registration
QUALITY MANAGEMENT SYSTEM
This is to certify that the quality management system of
TOPTEC Co. Ltd.,
at
122, Asanvalley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea
Has been found to conform to the Quality Management System Standards:
KS P ISO 13485:2016 / ISO 13485:2016
This Certificate is valid for the following product or service ranges:
Design, Manufacturing and Sales of Masks
Issue Date : Jul. 27. 2020
Certification Date : Jul. 27. 2020
Valid Date : Jul. 26. 2023

Certification Name	Certification Contents	Certification Date	Remarks
ISO 9001	Quality management system	Jul. 2017	
ISO 14001	Environment management system	Jul. 2017	
OHSAS 18001	Occupational health and safety management system	Jul. 2016	
ISO 13485	Design, Manufacturing and Sales of Masks	Jul. 2020	

TOPTEC

Certificate No : RMDM0013

Certificate of Registration

QUALITY MANAGEMENT SYSTEM

This is to certify that
the quality management system of

TOPTEC Co. Ltd.,

at

122, Asanvalley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea

Has been found to conform to the Quality Management System Standards:

KS P ISO 13485:2016 / ISO 13485:2016

This Certificate is valid for the following product or service ranges:

Design, Manufacturing and Sales of Masks

Issue Date : Jul. 27. 2020

Certification Date : Jul. 27. 2020 Valid Date : Jul. 26. 2023

Authorized By E J Hwang

Eun-Ju Hwang, President

Korea Management Registrar
1dong,12F,Ace High Tech City 4775,Gyeongin-ro
Yeongdeungpo-gu, Seoul, 07299, Korea
T: 82-2-6309-9001 / F: 82-2-6309-9004

- KMR is accredited by the KAB (No. KAB-MC-01)
- CODE:M1A6/ Initial certification date: Jul. 27. 2020

Quality Management System Certificate

GERMAN CERT

TOPTEC Co., Ltd.

#122 Asan valley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea

German Cert Co., Ltd. Hereby certifies that the Quality Management System of the above organization has been evaluated and found to be in line with the requirements of the following standard:

ISO 9001:2015 / KS Q ISO 9001:2015

For the scope of

Design, Development and Manufacture of Automatic Facility and Machine

Certificate Number : **GCQ-202035**

Initial Certification Date :	30 July 2005
Certification Date :	29 July 2020
Expiry Date :	28 July 2023
Issue Date :	24 July 2020

GERMAN CERT
QUALITY MANAGEMENT SYSTEM

Daek Woo Ki

Scheme Manager

IAF

KAB
KAB-QC-38

GERMAN CERT Co., Ltd is accredited by Korea Accreditation Board as a certification body of Qualification management system. (Accreditation number : KAB-QC-38)

GERMAN CERT
GERMAN CERT
ISO 9001
REGISTERED

OH&S Management System Certificate

GERMAN CERT

TOPTEC Co., Ltd.

#122 Asan valley-ro, Dunpo-myeon, Asan-si, Chungcheongnam-do, Korea

German Cert Co., Ltd. Hereby certifies that the Occupational Health & Safety Management System of the above organization has been evaluated and found to be in line with the requirements of the following standard:

ISO 45001:2018 / KS Q ISO 45001:2018

For the scope of

Design, Development and Manufacture of Automatic Facility and Machine

Certificate Number : **GCO-200011**

Initial Certification Date :	29 July 2016	
Certification Date :	28 February 2020	
Expiry Date :	28 July 2022	
Issue Date :	24 July 2020	(Rev. 1-TS)

GERMAN CERT
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

Daek Wook Ki

Scheme Manager

IAF KAB

KAB-OC-32

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OH&S Management System Certificate

TOPTEC Co., Ltd.

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OHSAS 18001:2007

For the scope of

Design, Development, Manufacture and Service of Automatic Facility and Machine

Certificate Number : **KorO-160013**

Initial Certification Date :	29 July 2016
Certification Date :	29 July 2019
Expiry Date :	28 July 2022
Issue Date :	26 July 2019

Baek Woo Ki

Scheme Manager

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Environmental Management System Certificate

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ISO 14001:2015 / KS I ISO 14001:2015

For the scope of

Design, Development and Manufacture of Automatic Facility and Machine

Certificate Number : **GCE-200769**

Initial Certification Date :	30 July 2005
Certification Date :	29 July 2020
Expiry Date :	28 July 2023
Issue Date :	24 July 2020

GERMAN CERT
ENVIRONMENTAL MANAGEMENT SYSTEM

Baek Woo Ki

Scheme Manager

IAF KAB

This accreditation mark indicates that the certification body (accreditation number: KAB-EC-33) is accredited by Korea Accreditation Board (KAB) as an environmental management system certification body.

KAB-EC-33

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