

Number: GZHT02297110

Report Ref:	GZHT02297110		
Date received:	May 29, 2020	Date Issued:	Jun 08, 2020

Company Name:
Address:
GUANGZHOU DAYUN MEDICALTECHNOLOGY CO., LTD.
BUILDING B2,NO. 632,XINTANG AVENUE,
XINTANG,ZENGCHENG DISTRICT,
GUANGZHOU,GUANGDONG

Contact Name:
LIU PAN

The Following Sample Was Submitted And Identified By/On Behalf Of The Applicant As:		
End Uses :	Medical Face Mask	
Ratings :	Level 1	
Sample Name	Disposable Medical Mask	
Size	17.5*9.5CM	
Colour :	Blue	
Standard	ASTM F2100-19 ^{£1}	
Brand :	KUNKKA	
Manufacturer :	GUANGZHOU DAYUN MEDICAL TECHNOLOGY CO., LTD.	
Date received/ Test Started :	May 29, 2020	
Ref :	DY-01	

Test was conducted on specific items, at our client's request.

Prepared And Checked By:

For Intertek Testing Services Shenzhen Ltd. Guangzhou Branch

Lin Lin

General Manager

AL / abbyqzeng

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Intertek Testing Services Stienzhen Ltd. Guangzhou Branch

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Number: GZHT02297110



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Number: GZHT02297110

Summary of testing:

With reference to following standard:

- ASTM F2100-19^{£1} Standard Specification for Performance of Materials Used in Medical Face Masks Level 1
- ASTM F2101-19 Standard Test Method for Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face Mask Materials, Using a Biological Aerosol of Staphylococcus aureus
- EN 14683:2019+AC:2019 Medical face masks Requirements and test methods
- ASTM F2299/F2299M-17 Standard Test Method for Determining the Initial Efficiency of Materials Used in Medical Face Masks to Penetration by Particulates Using Latex Spheres
- ASTM F1862/F1862M-17 Standard Test Method for Resistance of Medical Face Masks to Penetration by Synthetic Blood
- 16 CFR Part 1610 Wearing Apparel Flammability

Materials Used in The Submitted Samples Were Found To Comply With The Requirements Of Above Standards As Specified in ASTM $F2100-19^{\epsilon 1}$ 9.1-9.5.

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Tests Conducted (As Requested By The Applicant)

Wearing Apparel Flammability:16 CFR Part 1610 (As Amendment In 2008)

X Plain Surface		Raise	ed Surface
	⊠ Leng □ Widt		
Prelim Plain Surface :			
Length: IBE			
Width: -			
Origir			<u>Requirement</u>
(seco	nds)		Class 1
1. IBE			
2. IBE			
3. DNI			
4. DNI			
5. DNI			
6			
7			
8			
9			
10			
Average: -			
Classification:	X	Class 1,	Normal Flammability
		Class 2,	Intermediate Flammability, Raised Surface
		Class 3,	Rapid And Intense Burning
Explanation Of Flammability Results:			
DNI Did not ignite.			
IBE Ignited but extinguished.			

* The disposable fabrics and garments need not to be refurbished in accordance with 16 CFR Part 1610.35 (a)(2).

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Number: GZHT02297110

Tests Conducted (As Requested By The Applicant)

2 Bacterial Filtration Efficiency (BFE)

As Per ASTM F2100-19^{£1} Standard Specification for Performance of Materials Used in Medical Face Masks Clause 9.1 and ASTM F2101-19 Standard Test Method for Evaluating the Bacterial Filtration Efficiency (BFE) of Medical Face Mask Materials, Using a Biological Aerosol of Staphylococcus aureus.

Test Item	Results (%)			Performance Requirement for		
	Specimen (1)	Specimen (2)	Specimen (3)	Specimen (4)	Specimen (5)	Medical Face Mask (%)
Bacterial Filtration Efficiency (BFE)	>99.9	>99.9	99.9	>99.9	99.9	Level 1: ≥95

Remarks:

1. Biological Aerosol: Staphylococcus aureus (ATCC 6538).

2. Testing side: Outside of the test specimen was facing towards the challenge aerosol.

3. Test area: 78 cm24. Flow rate: 28.3 L/min

5. The average plate count results of the positive controls: 2300 CFU

6. The average plate count results of the negative controls: < 1 CFU

7. CFU = Colony Forming Unit

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Economic & Technological Development District, Guangzhou, China



Number: GZHT02297110

Tests Conducted (As Requested By The Applicant)

Differential Pressure (ASTM F2100- $19^{\epsilon 1}$, Section 9.2, Testing Refer to EN 14683:2019+AC:2019 Annex C): Air flow: 8L/min, Test area diameter 25 mm, Test area: 4.9 cm².

<u>Tested</u> <u>Sample/Component</u>	Result (mm H ₂ O/cm ²)	Performance Requirement for Medical Face Mask (mm H ₂ O/cm ²) Level 1: < 5.0
		Level 1: < 5.0
Specimen (1)	4.7	
Specimen (2)	4.7	
Specimen (3)	4.3	
Specimen (4)	4.3	
Specimen (5)	4.6	
Average	4.5	

Remark: Test was conducted by external provider.

4 Resistance to Penetration by Synthetic Blood (ASTM F2100-19 $^{\epsilon 1}$, Section 9.4, Testing Refer to ASTM F1862/F1862M-17):

Synthetic blood surface tension: 0.041N/m, Distance between blow head front end and target area: 300 mm, Artificial blood volumes: 2 mL, Test Pressure: 80mmHg, Velocity: 450cm/s, Use a fixed target.

Tested Sample/Component	Result	<u>Performance</u> <u>Requirement for</u> Medical Face Mask
		Pass Pressure at
		Level 1: 80 mm Hg
Specimen (1)	None seen	
Specimen (2)	None seen	
Specimen (3)	None seen	
Specimen (4)	None seen	
Specimen (5)	None seen	
Specimen (6)	None seen	
Specimen (7)	None seen	
Specimen (8)	None seen	
Specimen (9)	None seen	
Specimen (10)	None seen	
Specimen (11)	None seen	
Specimen (12)	None seen	
Specimen (13)	None seen	
Remark: Test was conducted by external provider		

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Number: GZHT02297110

Tests Conducted (As Requested By The Applicant)

5 Sub-Micron Particulate Filtration (ASTM F2100-19^{ε1}, Section 9.3, Testing Refer to ASTM F2299/F2299M-17): Particle size in aerosol: 0.1 μm, Aerosol: PSL, Teat area: 100 cm², Airflow: 5.33cm/s, Sampling time: 1 min.

Tested Sample/Component	Result (%)	Performance Requirement for Medical Face Mask (%)
Specimen (1)	98.0	Level 1: ≥ 95
Specimen (2) Specimen (3) Specimen (4) Specimen (5)	98.1 97.4 95.1 95.7	

Remark: Test was conducted by external provider

End of Report

This report is made solely on the basis of your instructions and/or information and materials supplied by you. It is not intended to be a recommendation for any particular course of action. Intertek does not accept a duty of care or any other responsibility to any person other than the Client in respect of this report and only accepts liability to the Client insofar as is expressly contained in the terms and conditions governing Intertek's provision of services to you. Intertek makes no warranties or representations either express or implied with respect to this report save as provided for in those terms and conditions. We have aimed to conduct the Review on a diligent and careful basis and we do not accept any liability to you for any loss arising out of or in connection with this report, in contract, tort, by statute or otherwise, except in the event of our gross negligence or wilful misconduct. No copy of the test report(except for full text copy) shall be made without the written approval by Intertek.

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Sponsor: Liu Pan Guangzhou Dayun Medical Technology Co., Ltd. No.632 Xintang Ave., Xintang Town Zengcheng District Guangzhou, Guangdong, 511340 CHINA

Latex Particle Challenge GLP Report

Test Article: Product Name: Disposable Medical Mask (Non-sterile)

Model:DY-01

Study Number: 1311779-S01 Study Received Date: 18 Jun 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: STP0005 Rev 07

Deviation(s): Quality Event (QE) Number(s): QE22125

Summary: This procedure was performed to evaluate the non-viable particle filtration efficiency (PFE) of the test article. Monodispersed polystyrene latex spheres (PSL) were nebulized (atomized), dried, and passed through the test article. The particles that passed through the test article were enumerated using a laser particle counter.

A one-minute count was performed, with the test article in the system. A one-minute control count was performed, without a test article in the system, before and after each test article and the counts were averaged. Control counts were performed to determine the average number of particles delivered to the test article. The filtration efficiency was calculated using the number of particles penetrating the test article compared to the average of the control values.

The procedure employed the basic particle filtration method described in ASTM F2299, with some exceptions; notably the procedure incorporated a non-neutralized challenge. In real use, particles carry a charge, thus this challenge represents a more natural state. The non-neutralized aerosol is also specified in the FDA guidance document on surgical face masks. All test method acceptance criteria were met.

Test Side: Either Side
Area Tested: 91.5 cm²
Particle Size: 0.1 µm

Laboratory Conditions: 21°C, 31% relative humidity (RH) at 0827; 21°C, 30% RH at 0931

Average Filtration Efficiency: 99.881% Standard Deviation: 0.0460



Alexa Sanders electronically approved

Study Director Alexa S

Alexa Sanders

22 Jul 2020 20:20 (+00:00) Study Completion Date and Time

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Deviation Details: Controls and sample counts were conducted for one minute instead of an average of three one minute counts. This change shortens the total test time for each sample but will still provide an accurate determination of the particle counts. An equilibrate is a dwell period where the challenge is being applied to the test article for a certain period of time before test article counts are counted. The equilibrate period was reduced from 2 minutes to a minimum of 30 seconds which is sufficient time to clear the system of any residual particles, and establish a state of stable equilibrium before sample counts are taken. Test method acceptance criteria were met, results are valid.

Results:

Test Article Number	Test Article Counts	Average Control Counts	Filtration Efficiency (%)
1	14	11,908	99.88
2	16	12,216	99.87
3	11	12,914	99.915
4	26	13,719	99.81
5	9	12,514	99.928

Test Method Acceptance Criteria: Ambient background particles detected through the test system must be below 1% of the challenge total (<100 particles).

Procedures:

Test Set-up: Testing was conducted in an ISO Class 5 (class 100) HEPA filtered hood. The inlet air to the test system was filtered through a 0.2 µm rated air filter. The particle generator outlet was clamped off and the number of background particles within the test system was verified to be <100 particles at 1 cubic foot per minute (CFM). The flow rate through the test system was maintained at 1 CFM ± 5%.

An aliquot of the PSL was aerosolized using a particle generator, mixed with additional filtered air, dried and passed through the test system. The particles delivered were enumerated using a laser based particle counter.

Test Procedure: A test article was placed into the holder and the system was allowed to stabilize. The number of particles being delivered to the test article was determined (no medium in air stream) as oneminute control readings were taken prior to and after every test article. Control count averages were maintained at a level of 10,000-15,000 particles per cubic foot. One-minute counts were recorded for the test article between the control counts.

The PFE of each test article was determined by using the following equation:

$$\% PFE = \frac{C - T}{C} \times 100$$

Where: C = Combined average of the control counts

T = Average test article counts



Quality Assurance Statement

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	02 Jul 2020
Phase Inspected by Quality Assurance: Latex Test	15 Jul 2020
Audit Results Reported to Study Director	15 Jul 2020
Audit Results Reported to Management	15 Jul 2020

Scientists	Title
Denise Anderson	Supervisor
Alexa Sanders	Study Director

Data Disposition: The study plan, raw data and final report from this study are archived at Nelson Laboratories, LLC or an approved off-site location.

Nicole Widmer electronically approved

22 Jul 2020 18:46 (+00:00)

Date and Time



Sponsor: Liu Pan Guangzhou Dayun Medical Technology Co., Ltd. No.632 Xintang Avenue, Xintang Town Zengcheng District Guangzhou, Guandong, 511340 **CHINA**

Synthetic Blood Penetration Resistance GLP Report

Product Name: Disposable Medical Mask (Non-sterile) Test Article:

Model: DY-01 Lot #20200601

Study Number: 1311780-S01 Study Received Date: 18 Jun 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: STP0012 Rev 09

Deviation(s):

Summary: This procedure was performed to evaluate surgical facemasks and other types of protective clothing materials designed to protect against fluid penetration. The purpose of this procedure is to simulate an arterial spray and evaluate the effectiveness of the test article in protecting the user from possible exposure to blood and other body fluids. The distance from the target area surface to the tip of the cannula is 30.5 cm. A test volume of 2 mL of synthetic blood was employed using the targeting plate method.

This test method was designed to comply with ASTM F1862 and ISO 22609 (as referenced in EN 14683:2019 and AS4381:2015) with the following exception: ISO 22609 requires testing to be performed in an environment with a temperature of 21 ± 5°C and a relative humidity of 85 ± 10%. Instead, testing was performed at ambient conditions within one minute of removal from the environmental chamber held at those parameters.

All test method acceptance criteria were met.

Number of Test Articles Tested: Number of Test Articles Passed: 32

Test Side: Outside

Pre-Conditioning: Minimum of 4 hours at 21 ± 5°C and 85 ± 5% relative humidity (RH)

Test Conditions: 23.2°C and 21% RH

Results: Per ASTM F1862 and ISO 22609, an acceptable quality limit of 4.0% is met for a normal single sampling plan when ≥29 of 32 test articles show passing results.

Test Pressure: 120 mmHg (16.0 kPa)

Test Article Number Synthetic Blood Penetration 1-32 None Seen



Christopher Acker electronically approved

Study Director Christopher Acker 22 Jul 2020 00:35 (+00:00)

Study Completion Date and Time

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Test Method Acceptance Criteria: The output of synthetic blood passing through the targeting hole before and after every set of test articles must be ≤5% (±0.10 g) in difference from the theoretical output of 2 ml.

Procedure: A clean cannula was fixed onto the front of the valve and the reservoir was filled with synthetic blood. The reservoir pressure and timer were set to allow a differential weight of 95-102%. This was achieved by setting the valve timer to 0.5 seconds and 1.5 seconds, collecting and weighing the amount of fluid before and after the targeting hole, and then calculating the weight differences for the deliveries. After the reservoir pressure and timer duration had been adjusted, the 2 mL spray was verified by dispensing three spurts in a row through the targeting hole into a graduated cylinder and weighing. After every 16 test articles, synthetic blood was delivered into a graduated cylinder and weighed to ensure the test apparatus was still delivering 2 mL of synthetic blood.

Each test article was tested within one minute of removal from the conditioning chamber. The facemask was mounted on the test article(s) holding fixture and positioned 305 mm (12 in) from the cannula. The mask was then subjected to the 2 mL volume spray, which moved from the cannula in a horizontal path perpendicular to the facemask. This procedure used a targeting hole that blocked the initial, high-pressure portion of the synthetic blood stream and allowed only the fluid traveling at the target velocity to hit the center of the mask. Each test article was observed for penetration within 10 seconds of dispensing the synthetic blood against the target area.



Quality Assurance Statement

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	07 Jul 2020
Phase Inspected by Quality Assurance: Penetration Test	13 Jul 2020
Audit Results Reported to Study Director	14 Jul 2020
Audit Results Reported to Management	15 Jul 2020

Scientists	Title
Benjamin Sipes	Supervisor
Christopher Acker	Study Director

Data Disposition: The study plan, raw data and final report from this study are archived at Nelson Laboratories, LLC or an approved off-site location.

Eric Stembridge electronically approved

21 Jul 2020 18:19 (+00:00)

Quality Assurance

Date and Time



Sponsor: Liu Pan Guangzhou Dayun Medical Technology Co Ltd No.632, Xintang Ave., Xintang Town Zengcheng District Guangzhou, Guandong, 511340 **CHINA**

Bacterial Filtration Efficiency (BFE) GLP Report

Test Article: Product Name: Disposable Medical Mask (Non-sterile)

Model: DY-01

Study Number: 1311781-S01 Study Received Date: 18 Jun 2020

> Testing Facility: Nelson Laboratories, LLC

6280 S. Redwood Rd.

Salt Lake City, UT 84123 U.S.A.

Standard Test Protocol (STP) Number: STP0004 Rev 18 Test Procedure(s):

Deviation(s): None

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 10³ colony forming units (CFU) with a mean particle size (MPS) of 3.0 ± 0.3 µm. The aerosols were drawn through a sixstage, viable particle, Andersen sampler for collection. This test method complies with ASTM F2101-19 and EN 14683:2019, Annex B.

All test method acceptance criteria were met.

Test Side: Inside BFE Test Area: ~40 cm²

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

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

Test Article Dimensions: ~174 mm x ~153 mm

2.2 x 10³ CFU Positive Control Average: Negative Monitor Count: <1 CFU

MPS: 2.8 μm



Christopher Acker electronically approved

Study Director Christopher Acker 11 Aug 2020 23:08 (+00:00)

Study Completion Date and Time

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FRT0004-0001 Rev 22



Results:

Test Article Number	Percent BFE (%)
1	>99.9 ^a
2	>99.9
3	99.9
4	>99.9 ^a
5	>99.9 ^a

^a There were no detected colonies on any of the Andersen sampler plates for this test article.

The filtration efficiency percentages were calculated using the following equation:

$$\% BFE = \frac{C-T}{C} \times 100$$

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 $85 \pm 5\%$ RH, prior to BFE.

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

The MPS control average of the challenge aerosol shall be maintained at $3.0 \pm 0.3 \, \mu m$.

Procedure:

BFE: A culture of S. aureus, ATCC #6538, was diluted in peptone water (PEPW) to yield challenge level counts of $1.7 - 3.0 \times 10^3$ 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.



Quality Assurance Statement

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	07 Jul 2020
Phase Inspected by Quality Assurance: BFE Challenge Procedure	14 Jul 2020
Audit Results Reported to Study Director	14 Jul 2020
Audit Results Reported to Management	15 Jul 2020

Scientists	Title
Benjamin Sipes	Supervisor
Chris Acker	Study Director

Data Disposition: The study plan, raw data and final report from this study are archived at Nelson Laboratories, LLC or an approved off-site location.

Eric Stembridge electronically approved

11 Aug 2020 23:06 (+00:00)

Quality Assurance

Date and Time

Sponsor: Liu Pan Guangzhou Dayun Medical Technology Co., Ltd. No.632 Xintang Avenue, Xintang Town Zengcheng District Guangzhou, Guandong, 511340 **CHINA**

Differential Pressure (Delta P) GLP Report

Product Name: Disposable Medical Mask (Non-sterile) Test Article:

Model:DY-01

Study Number: 1311782-S01 18 Jun 2020 Study Received Date:

Nelson Laboratories, LLC Testing Facility:

6280 S. Redwood Rd.

Salt Lake City, UT 84123 U.S.A.

Standard Test Protocol (STP) Number: STP0004 Rev 18 Test Procedure(s):

Deviation(s):

Summary: 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: Inside

Delta P Flow Rate: 8 Liters per minute (L/min)

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

Test Article Dimensions: ~174 mm x ~152 mm

Results:

Test Article Number	Delta P (mm H ₂ O/cm ²)	Delta P (Pa/cm²)
1	5.0	48.7
2	5.0	49.1
3	5.0	48.9
4	4.7	46.6
5	4.8	46.9

Test Article Preparation: The test articles were conditioned for a minimum of 4 hours at $21 \pm 5^{\circ}$ C and 85 ± 5% RH, prior to Delta P testing.

Test Method Acceptance Criteria: The Delta P test flow rate shall be maintained at 8 L/min throughout the testing.



Sarah Guzman electronically approved

Sarah Guzman

22 Jul 2020 14:20 (+00:00)

Study Completion Date and Time

801-290-7500

Study Director

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Procedure:

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/cm² and Pa/cm² of test area and calculated using the following equation:

$$Delta P = \frac{\overline{M}}{A}$$

Where: \overline{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 cm².



Quality Assurance Statement

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	07 Jul 2020
Phase Inspected by Quality Assurance: Sample Preparation	10 Jul 2020
Audit Results Reported to Study Director	12 Jul 2020
Audit Results Reported to Management	13 Jul 2020

Scientists	Title
Sarah Smit	Supervisor
Sarah Guzman	Study Director
Benjamin Sipes	Scientist
Chris Acker	Scientist

Data Disposition: The study plan, raw data and final report from this study are archived at Nelson Laboratories, LLC or an approved off-site location.

Josilyn Stonebrook electronically approved Quality Assurance 22 Jul 2020 14:17 (+00:00)

Date and Time

Sponsor:
Guangzhou Dayun Medical Technology Co.,Ltd.
No.632, Xintang Avenue, Xintang Town
Zengcheng District Guangzhou, Guandong, 511340
CHINA

Flammability of Clothing Textiles GLP Report

Test Article: Disposable Medical Mask (Non-sterile)

Model:DY-01

Study Number: 1311783-S01 Study Received Date: 18 Jun 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: STP0073 Rev 06

Deviation(s): None

Summary: This procedure was performed to evaluate the flammability of plain surface clothing textiles by measuring the ease of ignition and the speed of flame spread. The parameter of time is used to separate materials into different classes, thereby assisting in a judgment of fabric suitability for clothing and protective clothing material. The test procedure was performed in accordance with the test method outlined in 16 CFR Part 1610 (a) *Step 1 - testing in the original state*. Step 2 - *Refurbishing and testing after refurbishing*, was not performed. All test method acceptance criteria were met.

Test Article Side Tested: Outside Surface

Orientation: Machine

Test Criteria for Specimen Classification (See 16 CFR Part 1610.7):

Class	Plain Surface Textile Fabric
1	Burn time ≥3.5 seconds
2	Not applicable to plain surface textile fabrics
3	Burn time <3.5 seconds

The 16 CFR Part 1610 standard specifies that 10 replicates are to be tested if, during preliminary testing, only 1 test article exhibits flame spread and it is less than 3.5 seconds or the test articles exhibit an average flame spread less than 3.5 seconds. Five replicates are to be tested if no flame spread is observed upon preliminary testing, if only 1 test article exhibits flame spread and it is equal to or greater than 3.5 seconds, or if the average flame spread is equal to or greater than 3.5 seconds. In accordance with the standard, 5 replicates were tested for this study.



Christopher Acker electronically approved

Study Director Christopher Acker

18 Jul 2020 00:23 (+00:00)
Study Completion Date and Time

801-290-7500

nelsonlabs.com

sales@nelsonlabs.com

szh FRT0073-0001 Rev 9 Page 1 of 3



Results:

Replicate Number	Time of Flame Spread
1	IBE
2	IBE
3	IBE
4	IBE
5	IBE

IBE = Test Article ignited, but extinguished

Test Method Acceptance Criteria: Flame length must be approximately 16 mm (~5% in) from the flame tip to the opening in the gas nozzle.

Test articles were prepared by cutting the material into approximately 50 x 150 mm Procedure: swatches. Preliminary testing to establish the orientation and side of the test article to test was performed. The side and orientation that burned the fastest was used to test the test articles. Each test article was clamped into the specimen holder and placed in an oven maintained at 105 ± 3°C for 30 ± 2 minutes. The test articles were then placed in a desiccator for a minimum of 15 minutes prior to testing.

The flame length of the flammability tester was adjusted to approximately 16 mm prior to testing. articles were placed on the flammability rack and the stop cord was strung through the guides. The flammability timer was zeroed and testing was started. When the flame reached the stop cord, the timer stopped, and the results were recorded. Testing was terminated for test articles that did not exhibit flame spread beyond the initial application of the flame.

szh



Quality Assurance Statement

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	07 Jul 2020
Phase Inspected by Quality Assurance: Sample Preparation/Conditioning	13 Jul 2020
Audit Results Reported to Study Director	14 Jul 2020
Audit Results Reported to Management	15 Jul 2020

Scientists	Title
Benjamin Sipes	Supervisor
Chris Acker	Study Director

Data Disposition: The study plan, raw data and final report from this study are archived at Nelson Laboratories, LLC or an approved off-site location.

Nicole Widmer electronically approved

17 Jul 2020 18:47 (+00:00)

Quality Assurance

Date and Time



> Retouradres Postbus 16114 2500 BC Den Haag

SUNGO Europe B.V. T.a.v. de heer Luo Olympisch Stadion 24 1076 DE Amsterdam

Datum: 12 mei 2020

Betreft: aanmelding medisch hulpmiddel klasse I

Geachte heer Luo,

Graag bevestig ik hierbij de ontvangst op 29 april 2020 van de mededeling ex artikel 5 van het Besluit medische hulpmiddelen (BMH) dat bedrijf Guangzhou Dayun Medical Technology Co., Ltd. met Europees gemachtigde SUNGO Europe B.V. onderstaand medisch hulpmiddel, ingedeeld in risicoklasse I, aflevert. Het product is onder volgend kenmerk geregistreerd. Ik verzoek u om in alle verdere correspondentie betreffende dit product het bijbehorende kenmerk te vermelden.

Disposable medical mask(Non-sterile)
(geen merknaam) (NL-CA002-2020-50865)

Toekomstige wijzigingen in bovengenoemde gegevens – waaronder een eventuele wijziging van de indeling in risicoklasse in verband met wijzigingen van Europese regelgeving inzake de classificatie van medische hulpmiddelen, en aan voortschrijdend wetenschappelijk inzicht (zie art.9, lid 3 van Europese Richtlijn 93/42/EEG) – dient u te zijner tijd mede te delen.

Volledigheidshalve wijs ik u erop dat het - ongeacht uw mededeling - verboden is een medisch hulpmiddel ter aflevering voorhanden te hebben, dan wel af te leveren indien niet aan de voor dat medisch hulpmiddel geldende regels gesteld bij of krachtens de Wet op de Medische Hulpmiddelen (WMH) wordt voldaan. Met name wijzen wij u op de Nederlandse-taaleis, de eisen voor het ter beschikking houden van de technische documentatie en de plicht tot het hebben van een Post Market Surveillance- en vigilantiesysteem.

Farmatec

Bezoekadres: Hoftoren Rijnstraat 50 2515 XP Den Haag

T 070 340 6161

http://hulpmiddelen.farmatec.nl

Inlichtingen bij:
J.I. van de Leuv

medische_hulpmiddelen@ minyws.nl

Ons kenmerk: CIBG-20201753

Bijlagen

Uw aanvraag 29 april 2020

Correspondentie uitsluitend richten aan het retouradres met vermelding van de datum en het kenmerk van deze brief. Tevens wijs ik u er voor de goede orde nog op dat de registratie van uw mededeling betreffende de aflevering van het bovengenoemde product slechts een administratieve handeling betreft. Deze ontvangstbevestiging behelst dan ook geen besluit betreffende de kwalificatie van het desbetreffende product als medisch hulpmiddel in de zin van art. 1 WMH, noch betreffende de indeling in risicoklasse I.

De Minister voor Medische Zorg en Sport, namens deze,

Afdelingshoofd

Dr. M.J. van de Velde

Dhr. M.J. van de Velde

File No: CE-TCF-001

EC Declaration of Conformity

Regarding Medical Device Directive(93/42/EEC)

including Directive 2007/47/EC

Applicant

Name: Guangzhou Dayun Medical Technology Co.,Ltd.

Address: No.632,Xintang Avenue,Xintang Town,Zengcheng Distrit Guangzhou,Guangdong,China

EC Representative

Name: SUNGO Europe B.V.

Address: Olympisch Stadion 24, 1076DE Amsterdam, Netherlands

Product

Name: Disposable medical mask (Non-sterile)

Type: DY-01(17.5cm \times 9.5cm), DY-02(14.0cm \times 9.0cm), DY-03(12.0cm \times 7.0cm)

Classification: Class I (MDD, Annex IX), Rule 1(All non-invasive devices are in class I) Conformity Assessment Route: Annex VII

We confirm our product can meet the requirement of Medical Device Directive(93/42/EEC) and the following harmonized standards.

EN ISO 14971:2012 EN ISO 15223-1:2016 EN 1041:2013

EN ISO 10993-1:2009/AC:2010

EN ISO 10993-5:2009

EN ISO 10993-10:2013

Signature:

Date:

On behalf of SUNGO Europe office, I confirmed we are EU REP of the company who issue this document.

Sungo

Authorized Signature (S)



60382611 001 168266786 Seite 1 von 12 Prüfbericht-Nr.: Auftrags-Nr. Page 1 of 12 Test Report No.: Order No.:

Kunden-Referenz-Nr.: Auftragsdatum: N/A May. 28, 2020

Client Reference No.: Order date:

Guangzhou Dayun Medical Technology Co.,Ltd.

Auftraggeber: No.632, Xintang Avenue, Xintang Town, Zengcheng District Guangzhou, Guandong,

Client:

Prüfgegenstand: Disposable medical mask (Non-sterile)

Test item:

Bezeichnung / Typ-Nr.: DY-01

Identification / Type No.:

Auftrags-Inhalt:

Type test Order content:

EN 14683:2019+AC:2019 except for clause 5.2.6 Prüfgrundlage:

Test specification:

Wareneingangsdatum: May. 27, 2020

Date of receipt:

Prüfmuster-Nr.: 20200413

Test sample No.:

Prüfzeitraum: May. 28, 2020 to Jun. 09,

Testing period: 2020

Ort der Prüfung: See page 3 Place of testing:

Prüflaboratorium: TÜV Rheinland (Shenzhen)

Testing laboratory: Co., Ltd.

Prüfergebnis*: Test result*:

geprüft von / tested by:

Pass

Yazhen Xu

kontrolliert von / reviewed by:

Angelad

Jun. 15, 2020 Angela Chen / Department Manager

See Attachment: Photo documentation for details.

Jun. 15, 2020 Yazhen Xu, Amanda Liu/ Engineer

Datum Name / Stellung Unterschrift Datum Name / Stellung Unterschrift Name / Position Date Signature Date Name / Position Signature

Sonstiges / Other.

The test report consists of EN 14683 test report including this cover page (12 pages) and attachment: Photo documentation (3 pages).

- The Biocompatibility (clause 5.2.6) is not evaluated in this test report.

Amanda Liu

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt Condition of the test item at delivery: Test item complete and undamaged

Legende: 1 = sehr gut 2 = gut 4 = ausreichend 5 = mangelhaft 3 = befriedigend P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet Legend: 2 = aood3 = satisfactory 4 = sufficient 1 = very good 5 = poorP(ass) = passed a.m test specification(s) F(ail) = failed a.m test specification(s) N/A = not applicable N/T = not tested

Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens.

This test report only relates to the a.m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark



EN 14683:2019+AC: 2019

Medical face masks —

Requirements and test methods

Report Reference No.....: 60382611 001

Date of issue....: See cover page

Total number of pages...:: See cover page

Testing Laboratory.....: TÜV Rheinland (Shenzhen) Co., Ltd.

Address....: 1F East & 2-4F, Cybio Technology Building No.1, No.16 Kejibei 2nd

Road, High-Tech Industrial Park North Nanshan District, 518057,

Shenzhen, China

Applicant's name: Guangzhou Dayun Medical Technology Co.,Ltd.

Address.....: No.632, Xintang Avenue, Xintang Town, Zengcheng District

Guangzhou, Guandong, China

Test specification:

Standard....: EN 14683:2019+AC:2019

Test procedure....: Type test

Non-standard test method.....: N/A

Test Report Form No.....: EN 14683:2019+AC:2019_A

Test Report Form Originator....: TÜV Rh (SZ)

Master TRF.....: 2020-03

Test item description.....: Disposable medical mask (Non-sterile)

Trade Mark:

KUNKKA

Manufacturer: Same as the applicant

Model/Type reference: DY-01

Classification: Type IIR



List of Attachments (including a total number of pages in each attachment):	
Attachment – Photo Documentation (3 pages)	
Summary of testing:	
Tests performed (name of test and test clause): Construction check according to: Clause 5.1.1 Materials and construction Clause 5.1.2 Design	Testing location: TÜV Rheinland (Shenzhen) Co., Ltd. 1F East & 2-4F, Cybio Technology Building No.1, No.16 Kejibei 2nd Road, High-Tech Industrial Park North Nanshan District, 518057, Shenzhen, China
Clause 5.2.2 Bacterial filtration efficiency (BFE) Clause 5.2.3 Breathability Clause 5.2.4 Splash resistance Clause 5.2.5 Microbial cleanliness (Bioburden)	Pony Testing International Group 2/3/4/6F., Building 35, No.680, Guiping Road, Xuhui District, Shanghai, 200233, China



Copy of marking plate

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



Shown on the front package



Shown on the front package







Shown on the carton

	合格证 Q.C.PASSED
产品名称 Product	一次性使用医用口罩 (非灭菌) Disposable medical mask(Non-sterile)
限值标准 Limit Standard	EN14683:2019+AC:2019
品 牌 Brand	KUNKKA
产品型号 Model	DY-01
产品规格 Spec.	17.5*9.5cm
包装规格 Packing Spec.	50片/盒 50pcs/box
主要成分 Material	70% 无纺布 30% 熔喷布 70% PP non-woven, 30% melt-blown filter
生产批号 Lot No.	20200601
质检员 QC	QC01 《科技》
检验日期 Inspection Date	2020年16月01日 1st of June, 2010
生产日期 Production Date	20201 06 101 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
有效期限 Expiry Date	2022年75月31日 31th of Ma 2022松验合格章
生产单位 Manufacturer	广州达运医疗科拉有限公司 Guangzhou Dayun Medical Technology Co., Ltd.
生产地址 Address	广州市新塘镇新塘大道632号正华工业园 No.632, Xintang Avenue, Xintang Town, Zengcheng District, Guangzhou, Guangdong, China

Shown on the certificate



Testing
Date of receipt of test item(s) See cover page
Dates of tests performed See cover page
Possible test case verdicts:
- test case does not apply to the test object: N/A
- test object does meet the requirement P (Pass)
- test object was not evaluated for the requirement : N/E (collateral standards only)
- test object does not meet the requirement : F (Fail)
General remarks:
"(See Attachment #)" refers to additional information appended to the report. "(See appended table)" refers to a table appended to the report. The tests results presented in this report relate only to the object tested. This report shall not be reproduced except in full without the written approval of the testing laboratory. List of test equipment must be kept on file and available for review. Additional test data and/or information provided in the attachments to this report. Throughout this report a □ comma / ☑ point is used as the decimal separator. Name and address of factory (ies)
Name and address of factory (les)
General product information:
1, The tested medical mask classified as type IIR. 2, The Biocompatibility (clause 5.2.6) is not evaluated in this test report. 3, The test results are for reference only. Relevant certification may be needed if the mask is intended to be sold in Europe.

Page	7	Ωf	1	2
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Report No. 60382611 001

Claura a	Daminament I Test	Descript Demonds	\ / - !!
Clause	Requirement + Test	Result - Remark	Verdict
4	Classification		Р
	Medical face masks specified in this European Standard are classified into two types (Type I and Type II) according to bacterial filtration efficiency whereby Type II is further divided according to whether or not the mask is splash resistant. The 'R' signifies splash resistance.	Type IIR	Р
5	Requirements		Р
5.1	1 General		Р
5.1.1	Materials and construction		Р
	composed of a filter layer that is placed, bonded or moulded between layers of fabric.	3 ply designed with two layers of polypropylene spunbond nonwoven and one layer of polypropylene melt-blown nonwoven.	Р
	The medical face mask shall not disintegrate, split or tear during intended use.		Р
	In the selection of the filter and layer materials, attention shall be paid to cleanliness.		Р
5.1.2	Design		P
	The medical face mask shall have a means by which it can be fitted closely over the nose, mouth and chin of the wearer and which ensures that the mask fits closely at the sides.		P
	Medical face masks may have different shapes and constructions as well as additional features such as a face shield (to protect the wearer against splashes and droplets) with or without anti-fog function, or a nose bridge (to enhance fit by conforming to the nose contours).	With nose clip	Р
5.2	Performance requirements		Р
5.2.1	General		P
	All tests shall be carried out on finished products or samples cut from finished products.		Р
5.2.2	Bacterial filtration efficiency (BFE)		Р
	When tested in accordance with Annex B, the BFE of the medical face mask shall conform to the minimum value given for the relevant type in Table 1.	See appended table 5.2.2	Р
	For thick and rigid masks such as rigid duckbill or cup masks the test method may not be suitable as a proper seal cannot be maintained in the cascade impactor. In these cases, another valid equivalent method shall be used to determine the BFE.	Not such mask.	N/A
		Same characteristics and same layer-composition	N/A
	The lowest performing panel or area shall determine the BFE value of the complete mask	See above	N/A

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Report No. 60382611 001

	EN 14683:2019+AC:20	19	1
Clause	Requirement + Test	Result - Remark	Verdict
5.2.3	Breathability		Р
	When tested in accordance with Annex C, the differential pressure of the medical face mask shall conform to the value given for the relevant type in Table 1.	See appended table 5.2.3	Р
	If the use of a respiratory protective device as face mask is required in an operating theatre and/or other medical settings, it might not fulfil the performance requirements with regard to differential pressure as defined in this European Standard. In such case, the device should fulfil the requirement as specified in the relevant Personal Protective Equipment (PPE) standard(s).		N/A
5.2.4	Splash resistance		Р
	When tested in accordance with ISO 22609:2004 the resistance of the medical face mask to penetration of splashes of liquid shall conform to the minimum value given for Type IIR in Table 1.	See appended table 5.2.4	P
5.2.5	Microbial cleanliness (Bioburden)		Р
	When tested according to EN ISO 11737-1:2018 the bioburden of the medical mask shall be \leq 30 CFU/g tested (see Table 1).	See appended table 5.2.5	Р
5.2.6	Biocompatibility		N/E
	According to the definition and classification in EN ISO 10993-1:2009, a medical face mask is a surface device with limited contact.	The biocompatibility is not evaluated in this test report.	N/E
	The manufacturer shall complete the evaluation of the medical face mask according to EN ISO 10993-1:2009 and determine the applicable toxicology testing regime.		N/E
	The results of testing should be documented according to the applicable parts of the EN ISO 10993 series.		N/E
	The test results shall be available upon request.		N/E
6	Marking, labelling and packaging		P
	Annex I, §13, of the Medical Devices Directive (93/42/EEC) or Annex I, §23, of the Medical Device Regulation (EU) 2017/745 specifies the information that should be specified on the packaging in which the medical face mask is supplied.	See "Copy of marking plate".	P
	The following information shall be supplied:		Р
	a) number of this European Standard;		Р
	b) type of mask (as indicated in Table 1).		Р
	EN ISO 15223-1:2016 and EN 1041:2008+A1:2013 should be considered.		Р



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	EN 14683:2019+AC:2019				
Clause	Requirement + Test		Result - Remark		Verdict

5.2.2	•	TABLE: Bact	erial filtrati	on efficienc	y (BFE)			Р
Batch/ lot no.:	Test Specimen no.:	Dimension of the test specimen L x W (mm x mm)	(cm²)	Flow rate (I/min)	Mean of the total plate counts of the two positive controls	Mean plate count of the negative controls	BFE for each test specimen (%)	Remarks
2020041	1	175×140	95.0	28.3			99.90	
3	2	175×140	95.0	28.3			99.90	
	3	175×140	95.0	28.3	1920	0	99.90	
	4	175×140	95.0	28.3			99.90	
	5	175×140	95.0	28.3			99.90	

Supplementary information:

^{1,} Each specimen was conditioned at <u>21.7</u> °C and <u>85.0</u> % relative humidity for <u>4</u> h to bring them into equilibrium with atmosphere prior to testing.

2, The side of the test specimen was facing towards the challenge aerosol: the inside of the test specimen.



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EN 14683:2019+AC:2019				
Clause	Requirement + Test		Result - Remark	Verdict

5.2.3	1	ΓABLE: Breathability (Different	tial pressure)			Р
Batch/ lot no.:	Test Specimen number- Test area number	Differential pressure for each test area (Pa/cm²)	The averaged differential pressure for each test specimen (Pa/cm²)	Flow rate (I/min)	Ren	narks
202004	1-1	29.9		8.0		-
13	1-2	27.9		8.0		
	1-3	28.1	29.1	8.0		-
	1-4	29.4		8.0		-
	1-5	30.4		8.0		-
	2-1	28.7		8.0		
	2-2	28.2		8.0		-
	2-3	28.7	29.0	8.0		
	2-4	30.2		8.0		
	2-5	29.3		8.0		
	3-1	29.1		8.0		
	3-2	27.7		8.0		
	3-3	30.9	29.2	8.0		-
	3-4	27.5		8.0		
	3-5	30.8		8.0		
	4-1	25.6		8.0		
	4-2	26.1		8.0		
	4-3	25.8	25.3	8.0		
	4-4	25.2		8.0	,	
	4-5	23.9		8.0		-
	5-1	30.2		8.0		
	5-2	29.5		8.0		-
	5-3	31.5	30.3	8.0		
	5-4	30.8		8.0		
	5-5	29.7		8.0		-

Supplementary information:

Each specimen was conditioned at $\underline{21.7}$ °C and $\underline{84.6}$ % relative humidity for $\underline{4}$ h to bring them into equilibrium with atmosphere prior to testing.

5.2.4	TABLE: Splash resistance	Р	
-------	--------------------------	---	--



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Report No. 60382611 001

EN 14683:2019+AC:2019				
Clause	Requirement + Test		Result - Remark	Verdict

		•		
Batch/ lot no.:	Test mask no.:	The material of tested mask	Test result (Pass/fail)	Remarks
20200413	1		Pass	
	2		Pass	-
	3		Pass	
	4		Pass	
	5		Pass	
	6		Pass	
	7		Pass	
	8		Pass	
	9]	Pass	
	10		Pass	
	11		Pass	
	12	1	Pass	
	13]	Pass	
	14	See clause 5.1.1	Pass	
	15		Pass	
	16		Pass	-
	17		Pass	
	18		Pass	
	19		Pass	
	20		Pass	
	21		Pass	
	22		Pass	
	23		Pass	
	24		Pass	
	25		Pass	
	26		Pass	
	27		Pass	
	28		Pass	
	29		Pass	
	30		Pass	
	31		Pass	
	32		Pass	



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Report No. 60382611 001

		9	'				
EN 14683:2019+AC:2019							
Clause	Requirement + Test		Result - Remark	Verdict			

Supplementary information:

- 1, Each specimen was conditioned at $\underline{21.7}$ °C and $\underline{84.6}$ % relative humidity for $\underline{4}$ h to bring them into equilibrium with atmosphere prior to testing.
- 2, The description of target area tested: the centre of the outside of specimen.
- 3, Any technique used to enhance visual detection of synthetic blood: cotton absorbent swab.
- 4, The temperature and relative humidity for testing: 21.7 °C and 84.6 %.
- 5, Description of any pre-treatment techniques used: N/A.

5.2.5	TABLE: Mi	TABLE: Microbial cleanliness (Bioburden)				
Batch/ lot no.:		Mask(under test) no.:	Weight of each mask (g)	Total bioburden per individual mask (CFU/g)	Remarks	
20200413		1	3.37	15		
		2	3.38	13		
		3	3.38	6		
		4	3.36	4		
		5	3.39	12	-	-
Suppleme	entary inforn	nation:	-1			

End of EN 14683 test report

QMF-RT-33008SHG Revision number: 1.0 Effective date: 2020-03-12

ATTACHMENT

Photo Documentation

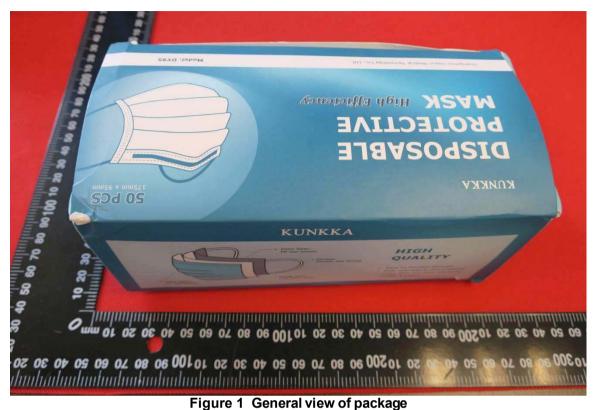
TÜVRheinland®

Report No.: 60382611 001

Page 1 of 3

<u>Product:</u> Disposable medical mask (Non-sterile)

Type Designation: DY-01



(The information in this figure will be replaced by Copy of marking plate in final package)



Figure 2 General view of mask (The information in this figure will be replaced by Copy of marking plate in final package)

ATTACHMENT

Photo Documentation

TÜVRheinland®

Report No.: 60382611 001

Page 2 of 3

Product: Disposable medical mask (Non-sterile)

Type Designation: DY-01



Figure 3 General view of mask

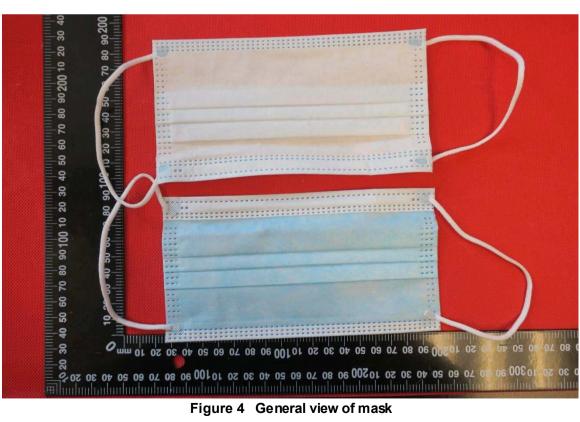


Figure 4 General view of mask

ATTACHMENT

Photo Documentation

TÜVRheinland®

Report No.: 60382611 001

Page 3 of 3

Disposable medical mask (Non-sterile) Product:

Type Designation: DY-01



Figure 5 View of mask (3 ply)

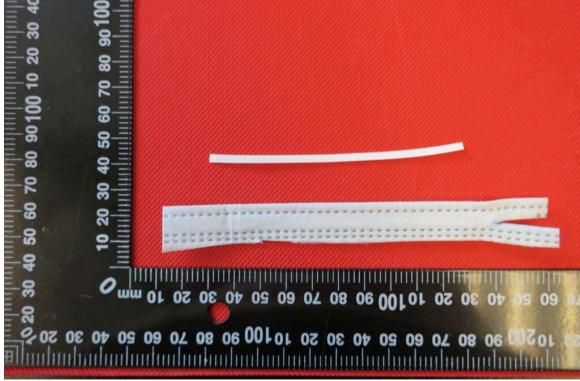


Figure 6 View of nose clip

END OF THE PHOTO DOCUMENTATION