GUANGDONG KINGFA SCI.&TECH. CO., LTD.
NO.28 DELONG AVENUE, SHIJIAO TOWN, QINGCHENG DISTRICT, QINGYUAN CITY, GUANGDONG PROVINCE, CHINA

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

Sample Description	:	(A)Particle Filtering Half Mask
Sample Color	:	(A)white
Composition	:	(A)PP, PET, PU, Fe
Style No.	:	KF-H 9421
Factory	:	GUANGDONG KINGFA SCI.&TECH. CO., LTD.
Country of Destination	:	Europe
Proposed Care Instruction	:	Disposable, non washable
Test Performed	:	Selected test(s) as requested by applicant
Sample Receiving Date	:	Aug 04, 2021
Testing Period	:	Aug 04, 2021 - Aug 27, 2021
Test Result(s)	:	Unless otherwise stated the results shown in this test report refer only to the sample(s) tested, for further details, please refer to the following page(s).

Conclusion:

Sample No.	Recommendation Level
(A)	FFP2 NR D

Signed for and on behalf of
SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd Testing Center

Sara Guo (Account Executive)

SGS does not verify authenticity of any Brand/Trademark of products. Buyers must check if the product is genuine with the Brand/Trademark owner directly.

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Test Result

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

Clause 7.4 Packaging
(EN 149:2001+A1:2009 Clause 8.2)

Test Requirement	Results	Comment
Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and contamination before use.	Comply	Pass

Clause 7.5 Material
(EN 149:2001+A1:2009, Clause 8.2 & 8.3.1 & 8.3.2)

Test Requirement	Results	Comment
Materials used shall be suitable to withstand handling and wear over the period for which the particle filtering half mask is designed to be used.	Comply	Pass
After undergoing the conditioning described in 8.3.1 none of the particle filtering half masks shall have suffered mechanical failure of the facepiece or straps.	Comply	
When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.	Comply	
Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer.	Comply	

Clause 7.6 Cleaning and Disinfecting
(EN 149:2001+A1:2009, Clause 8.4 & 8.5 & 8.11)

Test Requirement	Results	Comment
If the particle filtering half mask is designed to be re-usable, the materials used shall withstand the cleaning and disinfecting agents and procedures to be specified by the manufacturer. With reference to 7.9.2, after cleaning and disinfecting the re-usable particle filtering half mask shall satisfy the penetration requirement of the relevant class.	Not applicable (Not designed to be re-usable)	N.A.

Clause 7.7 Practical Performance
(EN 149:2001+A1:2009, Clause 8.4)

Test Requirement	Results	Comment
The particle filtering half mask shall undergo practical performance tests under realistic conditions. These general tests serve the purpose of checking the equipment for imperfections that cannot be determined by the tests described elsewhere in this standard.	No imperfections	Pass

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Clause 7.8 Finish of Parts
(EN 149:2001+A1:2009, Clause 8.2)

Test Requirement	Results	Comment
Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs.	No sharp edges or burrs	Pass

Clause 7.9.1 Total Inward Leakage
(EN 149:2001+A1:2009, Clause 8.5)

Test Requirement	Results	Comment
The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve fitted) and filter penetration. For particle filtering half masks fitted in accordance with the manufacturer's information, at least 46 out of the 50 individual exercise results (i.e. 10 subjects x 5 exercises) for total inward leakage shall be not greater than: 25% for FFP1, 11% for FFP2, 5% for FFP3 and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than: 22% for FFP1, 8% for FFP2, 2% for FFP3	Detail refer to Appendix 1	Meet FFP1, Meet FFP2

Appendix 1: Summarization of Test Data

Inward Leakage Test Data

Subject	Sample No.	Condition	Walk(%)	Head Side/side(%)	Head up/down(%)	Talk(%)	Walk(%)	Mean(%)
Zhou	1	A.R.	3.07	3.57	3.48	3.66	2.74	3.30
Luo	2	A.R.	4.19	4.06	4.29	4.68	4.23	4.29
Lu	3	A.R.	3.79	3.48	3.13	3.88	3.03	3.46
Wang	4	A.R.	2.10	2.08	2.01	2.91	2.12	2.24
Bao	5	A.R.	4.59	4.23	4.59	4.77	3.78	4.39
Ding	6	T.C.	2.20	2.09	2.75	2.84	2.48	2.47
Li	7	T.C.	4.68	4.44	4.17	5.09	4.63	4.60
Chen	8	T.C.	2.40	2.28	2.47	3.08	2.95	2.64
Song	9	T.C.	3.53	3.41	3.66	4.01	3.73	3.67
Ye	10	T.C.	4.49	4.24	4.89	5.21	4.59	4.68

Facial Dimension

Subject	Face length	Face Width	Face Depth	Mouth Width
Chen	125	150	120	58
Lu	115	132	107	48
Zhou	115	135	106	52
Li	125	130	107	46
Luo	125	136	100	43
Zheng	128	140	112	55
Wang	120	147	103	48
Song	120	140	100	50
Bao	130	134	104	50

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Ding	134	150	110	52
Liu	120	135	117	50
Ye	126	137	105	52

Note: A panel of ten clean-shaven persons (without beards or sideburns) were selected covering the spectrum of facial characteristics of typical users of the filtering half masks submitted by applicant (excluding significant abnormalities). It is to be expected that exceptionally some persons cannot be satisfactorily fitted with a particle filtering half mask. Such exceptional subjects shall not be used for testing particle filtering half masks.

Clause 7.9.2 Penetration of Filter Material

(EN 149:2001+A1:2009, Clause 8.11 & EN 13274-7:2019)

<table>
<tr><th>Test Requirement</th><th>Results</th><th>Comment</th></tr>
<tr><td>The penetration of the filter of the particle filtering half mask shall meet the requirements of the following table.
<table>
<tr><th rowspan="2">Classification</th><th colspan="2">Maximum penetration of test aerosol</th></tr>
<tr><th>Sodium chloride test 95 l/min
%
max.</th><th>Paraffin oil test 95 l/min
%
max.</th></tr>
<tr><td>FFP1</td><td>20</td><td>20</td></tr>
<tr><td>FFP2</td><td>6</td><td>6</td></tr>
<tr><td>FFP3</td><td>1</td><td>1</td></tr>
</table></td><td>Detail refer to Appendix 2</td><td>Meet FFP1,
Meet FFP2,
Meet FFP3</td></tr>
</table>

Appendix 2: Summarization of Test Data

Penetration of filter material

Aerosol	Condition	Sample No.	Penetration (%)
Sodium chloride test	Penetration test (As received)	1	0.174
		2	0.195
		3	0.186
	Penetration test （Simulated wearing treatment）	4	0.178
		5	0.182
		6	0.173
	Exposure test （Mechanical strength +Temperature conditioned）	7	0.239
		8	0.257
		9	0.306
Paraffin oil test	Penetration test (As received)	10	0.243
		11	0.261
		12	0.257
	Penetration test （Simulated wearing treatment）	13	0.249
		14	0.268
		15	0.275
	Exposure test （Mechanical strength +Temperature conditioned）	16	0.627
		17	0.753
		18	0.659
Flow conditioning：Single filter: 95.0 L/min			

Clause 7.10 Compatibility with Skin

(EN 149:2001+A1:2009, Clause 8.4 & 8.5)

Test Requirement	Results	Comment
Materials that may come into contact with the wearer's skin shall not be known to be likely to cause irritation or any other adverse effect to health.	No irritation or any other adverse effect to health	Pass

Clause 7.11 Flammability

(EN 149:2001+A1:2009, Clause 8.6)

Test Requirement	Results	Comment
The material used shall not present a danger for the wearer and shall not be of highly flammable nature When tested, the particle filtering half mask shall not burn or not to continue to burn for more than 5 s after removal from the flame.	Detail refer to Appendix 3	Pass

Appendix 3: Summarization of Test Data

Flammability

Condition	Sample No.	Result
As received	1	NIL
	2	NIL
Temperature conditioned	3	NIL
	4	NIL

Clause 7.12 Carbon Dioxide Content of The Inhalation Air

(EN 149:2001+A1:2009, Clause 8.7)

Test Requirement	Results	Comment
The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume)	Detail refer to Appendix 4	Pass

Appendix 4: Summarization of Test Data

Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result	
As received	1	0.5715	Mean value:0.57
	2	0.5723	
	3	0.5701	

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Clause 7.13 Head Harness
(EN 149:2001+A1:2009, Clause 8.4 & 8.5)

Test Requirement	Results	Comment
The head harness shall be designed so that the particle filtering half mask can be donned and removed easily.	Comply	Pass
The head harness shall be adjustable or self-adjusting and shall be sufficiently robust to hold the particle filtering half mask firmly in position and be capable of maintaining total inward leakage requirements for the device.	Comply	

Clause 7.14 Field of Vision
(EN 149:2001+A1:2009, Clause 8.4)

Test Requirement	Results	Comment
The field of vision is acceptable if determined so in practical performance tests.	Comply	Pass

Clause 7.15 Exhalation Valve(s)
(EN 149:2001+A1:2009, Clause 8.2 & 8.9.1 & 8.3.4 & 8.8)

Test Requirement	Results	Comment
(a) A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations.	Not applicable due to No exhalation valve	N.A.
(b) If an exhalation valve is provided it shall be protected against or be resistant to dirt and mechanical damage and may be shrouded or may include any other device that may be necessary for the particle filtering half mask to comply with 7.9.	Not applicable due to No exhalation valve	
(c) Exhalation valve(s), if fitted, shall continue to operate correctly after a continuous exhalation flow of 300 l/min over a period of 30 s.	Not applicable due to No exhalation valve	
(d) When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10N applied for 10 s.	Not applicable due to No exhalation valve	

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Clause 7.16 Breathing Resistance
(EN 149:2001+A1:2009, Clause 8.9)

Test Requirement	Results	Comment
The breathing resistances apply to valved and valveless particle filtering half masks and shall meet the requirements of the following table.	Detail refer to Appendix 5	Meet FFP1, Meet FFP2, Meet FFP3

Classification	Maximum permitted resistance (mbar)		
	Inhalation		Exhalation
	30 l/min	95 l/min	160 l/min
FFP1	0.6	2.1	3.0
FFP2	0.7	2.4	3.0
FFP3	1.0	3.0	3.0

Appendix 5: Summarization of Test Data

Breathing resistance (mbar)

	Flow rate(l/min)		1					2					3				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
As received	Inhalation	30	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.4	0.4
		95	1.4	1.4	1.3	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.3	1.4	1.4	1.3	1.3
	Exhalation	160	2.0	2.1	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.0	2.0
	Flow rate(l/min)		4					5					6				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Simulated wearing treatment	Inhalation	30	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4
		95	1.4	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.4	1.3	1.3	1.3
	Exhalation	160	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.0	2.1	2.1	2.0	2.0	2.1
	Flow rate(l/min)		7					8					9				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Temperature conditioned	Inhalation	30	0.4	0.4	0.3	0.3	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4
		95	1.3	1.3	1.4	1.4	1.4	1.3	1.3	1.3	1.4	1.4	1.4	1.4	1.3	1.3	1.3
	Exhalation	160	2.1	2.1	2.0	2.0	2.1	2.1	2.1	2.1	2.0	2.0	2.0	2.1	2.1	2.1	2.1

A: facing directly ahead; B: facing vertically upwards; C: facing vertically downwards; D: lying on the left side; E: lying on the right side

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Clause 7.17 Clogging #
(EN 149:2001+A1:2009, Clause 8.9 & 8.10)

<table>
<tr><th>Test Requirement</th><th>Results</th><th>Comment</th></tr>
<tr><td>Clause 7.17.2 Breathing resistance
Valved particle filtering half masks:
After clogging the inhalation resistances shall not exceed:
FFP1: 4 mbar, FFP2: 5 mbar, FFP3: 7 mbar at 95L/min continuous flow
The exhalation resistance shall not exceed 3 mbar at 160 L/min continuous flow.

Valveless particle filtering half masks:
After clogging the inhalation and exhalation resistances shall not exceed:
FFP1: 3 mbar, FFP2: 4 mbar, FFP3: 5 mbar at 95L/min continuous flow</td><td>See result as below</td><td>Meet FFP1
Meet FFP2
Meet FFP3</td></tr>
<tr><td>Clause 7.17.3 Penetration of filter material
All types (valved and valveless) of particle filtering half masks claimed to meet the clogging requirement shall also meet the requirements.

<table>
<tr><td rowspan="3">Classification</td><td colspan="2">Maximum penetration of test aerosol</td></tr>
<tr><td>Sodium chloride test 95 l/min</td><td>Paraffin oil test 95 l/min</td></tr>
<tr><td>%</td><td>%</td></tr>
<tr><td></td><td>max.</td><td>max.</td></tr>
<tr><td>FFP1</td><td>20</td><td>20</td></tr>
<tr><td>FFP2</td><td>6</td><td>6</td></tr>
<tr><td>FFP3</td><td>1</td><td>1</td></tr>
</table>
</td><td>See result as below</td><td>Meet FFP1
Meet FFP2</td></tr>
</table>

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Table 7.17-A Clogging test- Breathing resistance

Test specification: EN 149: 2001+A1: 2009 Clause 8.10

Condition	Sample No.	Directions	Inhalation(mbar) 95 l/min	Exhalation(mbar) 95 l/min
As received	1	A	1.7	1.6
		B	1.7	1.6
		C	1.8	1.7
		D	1.8	1.7
		E	1.7	1.6
Temperature conditioned	2	A	1.7	1.6
		B	1.7	1.6
		C	1.8	1.7
		D	1.8	1.7
		E	1.7	1.6
	3	A	1.7	1.6
		B	1.7	1.6
		C	1.8	1.7
		D	1.8	1.6
		E	1.7	1.6

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Table 7.17-B Clogging test- Penetration of test aerosol

Test specification: EN 149: 2001+A1: 2009 Clause 8.10

Aerosol type	Condition	Sample No.	Max penetration (%)
Sodium chloride test	As received	4	0.353
	Temperature conditioned	5	0.421
		6	0.415
Paraffin oil test	As received	7	1.05
	Temperature conditioned	8	1.27
		9	1.43
Flow conditioning： Single filter: 95.0 L/min			

Test	Uncertainty
Penetration of filter material	1.1%
Breathing resistance	1.8%

 # This test standard is carried out by external laboratory accredited by CNAS (China National Accreditation Service for Conformity Assessment) L1499.

Clause 7.18 Demountable Parts

(EN 149:2001+A1:2009, Clause 8.2)

Test Requirement	Results	Comment
All demountable parts (if fitted) shall be readily connected and secured, where possible by hand	No demountable parts	N.A.

Test	Uncertainty
Total inward leakage	3.4%
Penetration of filter material	4.8%
Carbon dioxide content of the inhalation air	3.9%
Breathing resistance (30L/min)	5.9%
Breathing resistance (95L/min)	4.9%
Breathing resistance (160L/min)	4.3%

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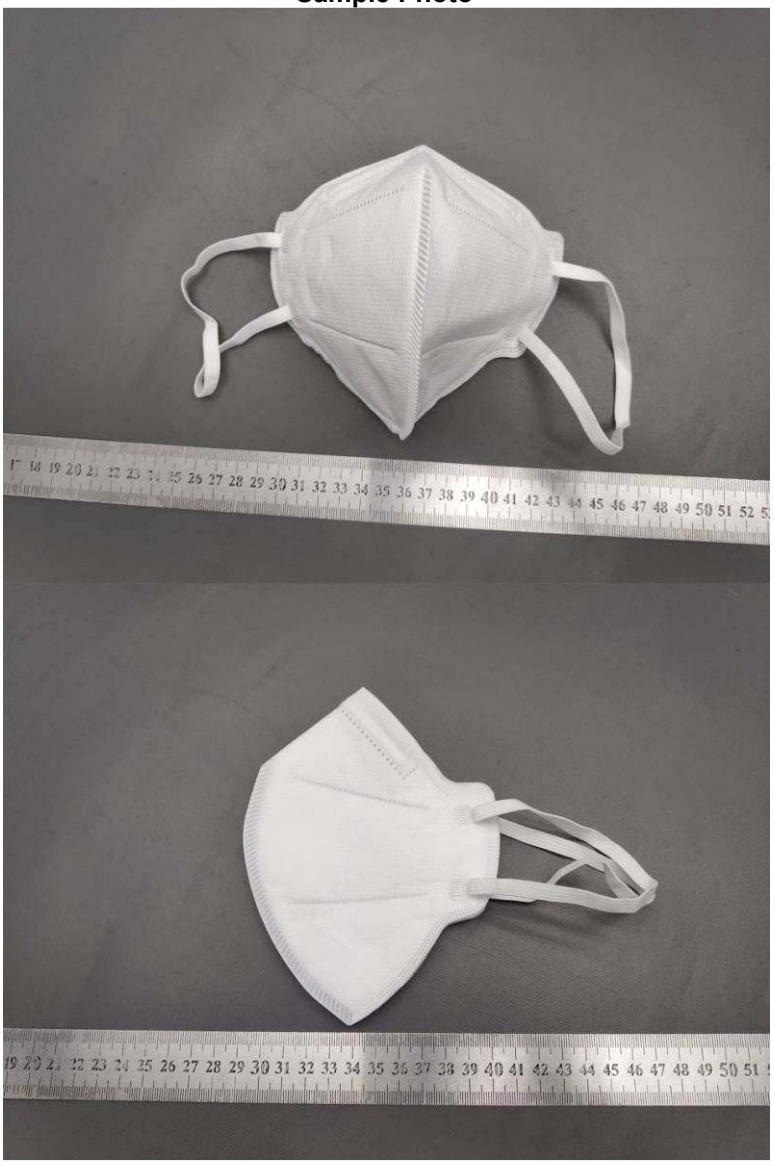
Sample Photo



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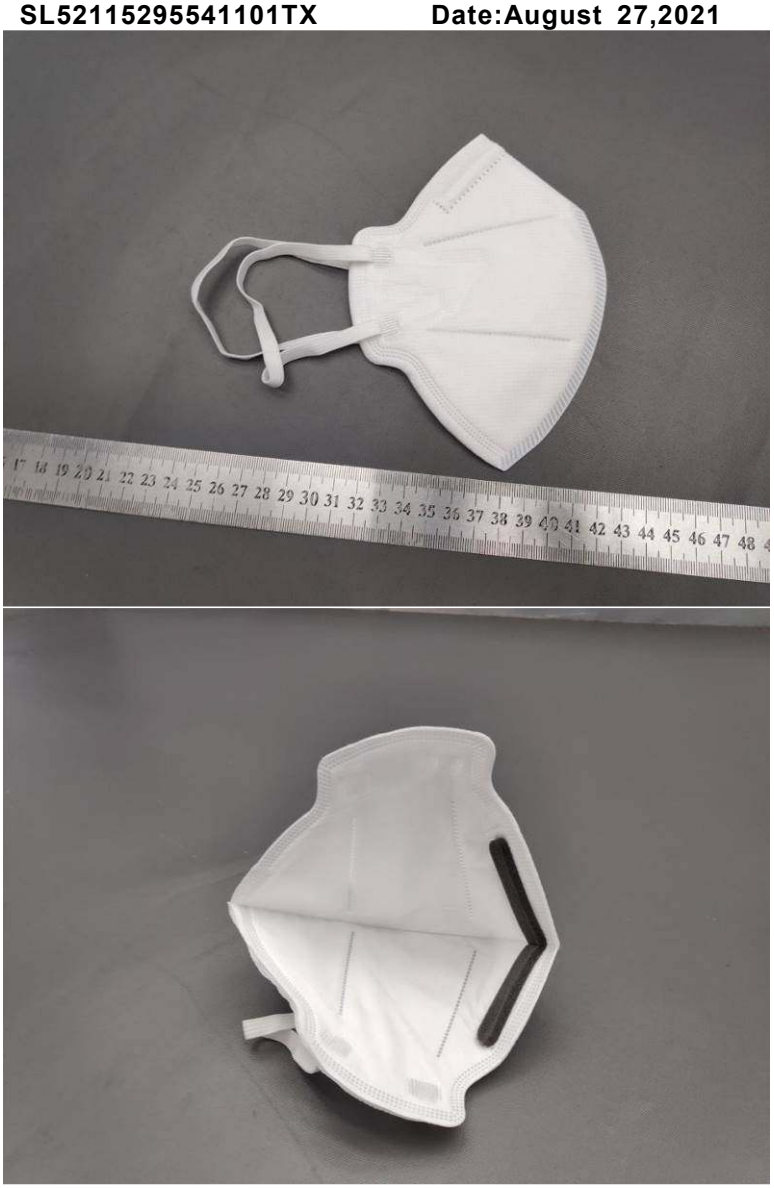

End of Report

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