





Page 1 of 10 **Test Report** SL52105244262901TX Date:March 29,2021

SHENZHEN HJR ELECTRONICS TECHNOLOGY CO.,LTD.

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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)Polypropylene Melt-blown

Style No. HJR-CN99-09

Country of Origin China Country of Destination Europe

Sample Size 16.5\*11cm(±5%)

**Test Performed** Selected test(s) as requested by applicant

Sample Receiving Date Mar 22, 2021

**Testing Period** Mar 23, 2021 - Mar 29, 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

Signed for and on behalf of

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd Testing Center

Sara Guo (Account Executive)

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Test Result

### <u>Personal Protective Equipment - Respiratory Protective Devices- Filtering Half Masks to Protect against</u> 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	Comply	Pass
before use.		

#### 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	
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	Pass
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

IIIWaiu Le	illward Leakage Test Data							
Subject	Sample	Condition	Walk(%)	Head	Head	Talk(%)	Walk(%)	Mean(%)
	No.			Side/side(%)	up/down(%)			
Zhou	1	A.R.	4.65	4.44	3.62	4.90	3.70	4.26
Luo	2	A.R.	4.34	4.39	5.43	5.85	5.90	5.18
Lu	3	A.R.	4.52	4.39	4.62	4.82	3.97	4.46
Wang	4	A.R.	3.04	3.50	2.93	3.50	3.18	3.23
Bao	5	A.R.	5.07	4.74	5.57	5.66	5.48	5.30
Ding	6	T.C.	3.54	3.69	3.12	3.79	3.36	3.50
Li	7	T.C.	5.74	5.20	5.18	5.79	5.68	5.52
Chen	8	T.C.	3.71	3.53	3.49	4.43	3.70	3.77
Song	9	T.C.	4.60	4.11	4.88	5.36	4.41	4.67
Ye	10	T.C.	5.82	5.26	5.72	5.86	5.45	5.62

### **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

### Clause 7.9.2 Penetration of Filter Material

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

	Test Requirement		Results	Comment	
	of the filter of the particle filteri the following table.	е			
Classifica Maximum penetration of test aerosol					
tion	Sodium chloride test 95 l/min %	Paraffin oil test 95 l/min %		Detail refer to Appendix 2	Meet FFP1, Meet FFP2
	max.	max.			
FFP1	20	20			
FFP2	6	6			
FFP3	1	1			

#### **Appendix 2: Summarization of Test Data**

#### Penetration of filter material

Aerosol	Condition	Sample No.	Penetration (%)
		1	0.467
	As received	2	0.451
		3	0.486
		4	0.493
Sodium chloride test	Simulated wearing treatment	5	0.482
	_	6	0.469
	Machanias I strangath . Tanaganatura	7	1.322
	Mechanical strength +Temperature conditioned	8	1.353
	Conditioned	9	1.341
		10	0.579
	As received	11	0.631
		12	0.596
		13	0.623
Paraffin oil test	Simulated wearing treatment	14	0.689
	_	15	0.583
	Machaniaal atropath . Taranaratura	16	4.561
	Mechanical strength +Temperature conditioned	17	4.896
	Conditioned	18	5.015
	Flow conditioning: Single fil	ter: 95.0 L/min	



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# 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	Detail refer to	Pass
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.	Appendix 3	rass

# **Appendix 3: Summarization of Test Data**

#### Flammability

Condition	Sample No.	Result
	1	NIL
As received	2	NIL
	3	NIL
Temperature conditioned	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	Detail refer to	Pass
exceed an average of 1,0 % (by volume)	Appendix 4	F a 5 5

# **Appendix 4: Summarization of Test Data**

# Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result			
		0.5764			
	1				
As received		0.5819	Mean value:0.58		
As received	2		iviean value.0.56		
		0.5811			
	3				



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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	
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	Pass

# 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	
(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	N.A.
(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)

	Tes	Results	Comment			
The breathing re half masks and s						
Classification	Maximu	um permitted resista	ance (mbar)		Datallastanta	Meet FFP1,
	Inh	nalation	Exhalation		Detail refer to	Meet FFP2,
	30 l/min	95 l/min	160 l/min		Appendix 5	Meet FFP3
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)

					1					2					3		
	Flow rate(la	/min)	Α	В	С	D	Е	Α	В	С	D	Е	Α	В	С	D	Е
As received	Inhalation	30	0.3	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4
	Inhalation	95	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.5	1.5	1.6
	Exhalation	160	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
					4					5					6		
Simulated	Flow rate(la	min)	Α	В	С	D	Ε	Α	В	С	D	Е	Α	В	С	D	Е
wearing	Inhalation	30	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.4	0.4	0.4	0.3
treatment	IIIIIaiatioii	95	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.5	1.6	1.6	1.6	1.6
	Exhalation	160	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.3	2.3
	[]t(I	/:-\			7			8					9				
	Flow rate(la	min)	Α	В	O	D	Е	Α	В	С	D	Е	Α	В	С	D	Ε
Temperature	Inhalation	30	0.3	0.3	0.4	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.4	0.4	0.4	0.4	0.4
conditioned	IIIIIaialiOII	95	1.5	1.5	1.6	1.6	1.6	1.6	1.6	1.5	1.5	1.5	1.6	1.6	1.6	1.6	1.6
	Exhalation	160	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3	2.3	2.3	2.2	2.2	2.3	2.3

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)

		Test Requirement	Results	Comment	
Aff FF Th flo	Ilved particle filt ter clogging the P1: 4 mbar, FF the exhalation re w. Ilveless particle ter clogging the	eathing resistance tering half masks: inhalation resistances shall not FP2: 5 mbar, FFP3: 7 mbar at 95 esistance shall not exceed 3 mb filtering half masks: inhalation and exhalation resisted.	Optional for single shift device only	N.A.	
<u>Cla</u>	ause 7.17.3 Pe types (valved	netration of filter material and valveless) of particle filter requirement shall also meet the	ring half masks claimed to		
Ī	Classificatio	Maximum penetration	n of test aerosol		
	n	Sodium chloride test 95 l/min	Paraffin oil test 95 l/min	Optional for single	N.A.
		%	%	shift device only	14.74.
		max.	max.		
•	FFP1	20	20		
	FFP2	6	6		
	FFP3	1	1		

# **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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