





中国认可 国际互认 检测 TESTING CNAS L0599

Test Report SL52025245007801TX Date: June 02,2020 Page 1 of 10

GUANGZHOU RENAULT BIOTECHNOLOGY CO., LTD. ROOM604, NORTH TOWER, R&F YING LI PLAZA, NO.3-2, HUAQIANG ROAD, TIANHE, GUANGZHOU, CHINA 51000

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

Sample Description : (A)Particulate Respirator

Sample Color : (A)White

Manufacturer : GUANGZHOU RENAULT BIOTECHNOLOGY CO., LTD.

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

Sample Receiving Date : Apr 16, 2020

Testing Period : Apr 20, 2020 – Jun 02, 2020

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 Particles- Requirements, Testing, Marking</u>

Date: June 02,2020

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	
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 value leakage(if exhalation value 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

inward Le	eakage res	l Dala						
Subject	Sample	Condition	Walk(%)	Head	Head	Talk(%)	Walk(%)	Mean(%)
	No.			Side/side(%)	up/down(%)			
Zhou	1	A.R.	6.3718	6.4531	8.0338	5.9070	7.5837	6.870
Luo	2	A.R.	7.7763	8.6471	5.9274	8.4404	7.9698	7.782
Lu	3	A.R.	5.3409	7.4266	7.0628	7.5763	6.2813	6.738
Wang	4	A.R.	6.2718	4.0763	5.6196	7.2342	5.2873	5.698
Bao	5	A.R.	6.0924	8.5353	6.3085	8.3515	7.4936	7.356
Ding	6	T.C.	6.4633	6.2627	5.4631	5.3193	5.4997	5.802
Li	7	T.C.	7.9945	5.8843	8.5232	6.9512	8.9032	7.651
Chen	8	T.C.	4.0820	6.4655	6.0016	4.5822	4.6107	5.148
Song	9	T.C.	6.4582	6.1547	5.6630	7.3995	6.4873	6.432
Ye	10	T.C.	7.9935	7.0627	7.8166	6.7796	9.0457	7.740

# Facial Dimension(mm)

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
Ding	134	150	110	52



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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 filte	he			
requ	uirements of t	the following table.				
	Classifica	Maximum penetration	on of test aerosol			
	tion	Sodium chloride test 95	Paraffin oil test 95 l/min			Meet FFP1,
		l/min			Detail refer to	Meet FFP2,
		%	%		Appendix 2	Meet FFP3
		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	0.098
	As received	2	0.068
		3	0.081
		4	0.063
Sodium chloride test	Simulated wearing treatment	5	0.055
		6	0.052
	Machanical atraneth (Tomporature	7	0.110
	Mechanical strength +Temperature conditioned	8	0.124
	Conditioned	9	0.117
		10	0.108
	As received	11	0.104
		12	0.124
		13	0.112
Paraffin oil test	Simulated wearing treatment	14	0.148
		15	0.152
	Machanical atrangth (Tamparatura	16	0.515
	Mechanical strength +Temperature conditioned	17	0.472
	Conditioned	18	0.507
	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	Pass
	effect to health	

#### 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	F 455

# **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	rass

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

Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result(%)				
	1	0.7124				
As received	2	0.6931	Mean value:0.71			
	3	0.7248				



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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 penetration of the filter of the particle filtering half mask shall meet the requirements of the following table.						
Classification	Maxim	um permitted resista	ance (mbar)	Detail refer to	Meet FFP1,	
	Inl	nalation	alation Exhalation			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(l	/min)	Α	В	С	D	Е	Α	В	С	D	Е	Α	В	С	D	Е
As received	Inhalation	30	0.4	0.4	0.4	0.5	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
	IIIIIalation	95	1.1	1.3	1.3	1.1	1.2	1.1	1.2	1.1	1.2	1.3	1.3	1.2	1.3	1.3	1.2
	Exhalation	160	2.5	2.7	2.6	2.6	2.7	2.5	2.5	2.7	2.7	2.7	2.5	2.6	2.5	2.7	2.7
					4					5			6				
Simulated	Flow rate(l	/min)	Α	В	С	D	Е	Α	В	C	D	Е	Α	В	С	D	Е
wearing	Inhalation	30	0.5	0.5	0.4	0.5	0.5	0.5	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4	0.5
treatment	malation	95	1.3	1.1	1.2	1.3	1.2	1.1	1.1	1.2	1.1	1.2	1.2	1.1	1.2	1.1	1.2
	Exhalation	160	2.6	2.5	2.6	2.6	2.7	2.7	2.6	2.7	2.7	2.6	2.7	2.6	2.6	2.7	2.6
	[]	/!\			7					8			9				
	Flow rate(l	/min)	Α	В	С	D	Е	Α	В	C	D	Е	Α	В	С	D	Е
Temperature	Inhalation	30	0.4	0.4	0.5	0.4	0.4	0.5	0.4	0.4	0.4	0.5	0.5	0.5	0.5	0.4	0.4
conditioned	95	1.0	1.2	1.2	1.1	1.2	1.1	1.2	1.1	1.2	1.1	1.0	1.2	1.1	1.0	1.2	
	Exhalation	160	2.6	2.5	2.5	2.4	2.4	2.5	2.5	2.5	2.5	2.6	2.6	2.4	2.4	2.5	2.5

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	
Valved particle filt After clogging the FFP1: 4 mbar, FF The exhalation re flow.  Valveless particle After clogging the	eathing resistance tering half masks: e inhalation resistances shall not FP2: 5 mbar, FFP3: 7 mbar at 95 esistance shall not exceed 3 mb efiltering half masks: e inhalation and exhalation resis FP2: 4 mbar, FFP3: 5 mbar at 95	Optional for single shift device only	N.A.	
All types (valved meet the clogging Classificatio n	netration of filter material and valveless) of particle filter prequirement shall also meet th  Maximum penetration Sodium chloride test 95 l/min % max. 20	Optional for single shift device only	N.A.	
FFP2 FFP3	6	<u>6</u> 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,	No demountable	N.A.
where possible by hand	parts	IN.A.



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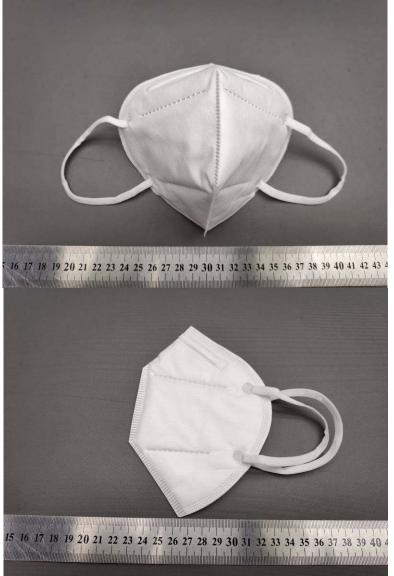
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