





中国认可 国际互认 检测 TESTING CNAS L0599

Test Report SL52035272733401TX Date: July 10,2020 Page 1 of 10

QINGDAO MOJINXITAN NEW MATERIAL TECHNOLOGY CO.,LTD NO.826-57,HUADONG ROAD,HIGH-TECH ZONE,QINGDAO,SHANDONG

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

Sample Description : Graphene Protective Masks

Sample color : Black

Manufacturer : QINGDAO MOJINXITAN NEW MATERIAL TECHNOLOGY CO.,LTD Supplier : QINGDAO MOJINXITAN NEW MATERIAL TECHNOLOGY CO.,LTD

Style No : Graphene -MSK1

Export to : Britain and other European countries

Brand merchants Versarien

Sample Receiving Date : May 27, 2020

Testing Period : May 27, 2020-Jul 10, 2020

Test Result(s) : Unless otherwise stated the results shown in this test report refer only to the

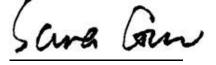
sample(s) tested, for further details, please refer to the following page(s).

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

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

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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	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

Clause 7.8 Finish of Parts

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

(E11 145:20011711:2005; Oladoc 6:2)		
Test Requirement	Results	Comment
Parts of the device likely to come into contact with the wearer shall have no	No sharp edges	Pass
sharp edges or burrs.	or burrs	F a 5 5



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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

Subject	Sample	Condition	Walk(%)	Head	Head	Talk(%)	Walk(%)	Mean(%)
	No.			Side/side(%)	up/down(%)			
1#	1	A.R.	4.5	5.6	6.0	6.2	4.8	5.4
2#	2	A.R.	5.1	6.0	6.4	6.7	5.4	5.9
3#	3	A.R.	5.2	6.3	6.6	7.0	5.7	6.2
4#	4	A.R.	4.8	5.6	5.7	6.0	4.7	5.4
5#	5	A.R.	5.3	6.1	6.5	6.9	5.3	6.0
6#	6	T.C.	4.2	4.7	5.4	5.8	4.1	4.8
7#	7	T.C.	5.0	6.2	6.5	6.8	5.5	6.0
8#	8	T.C.	5.4	6.3	6.5	7.2	5.7	6.2
9#	9	T.C.	5.0	6.4	6.7	6.7	5.5	6.1
10#	10	T.C.	4.2	5.0	5.9	5.9	4.4	5.1

Facial Dimension

Subject	Face length(mm)	Face Width(mm)	Face Depth(mm)	Mouth Width(mm)
1#	120	130	109	59
2#	122	140	115	65
3#	119	160	139	55
4#	112	122	119	63
5#	110	130	118	60
6#	115	119	110	59
7#	112	123	113	55
8#	103	130	100	50
9#	118	139	130	63
10#	120	135	125	50



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Clause 7.9.2 Penetration of Filter Material*

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

Test Requireme	ent	Results	Comment	
The penetration	of the filter of the particle filter	ering half mask shall meet th	е	
requirements of	the following table.			
Classifica	Maximum penetration	on of test aerosol		
tion	Sodium chloride test 95	Paraffin oil test 95 l/min		Mart EED4
	l/min		Dotoil refer to	Meet FFP1
	%	%	Detail refer to Appendix 2	Meet FFP2
	max.	max.	Appendix 2	
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	0.1
	As received	2	0.1
		3	0.2
		4	0.2
Sodium chloride test	Simulated wearing treatment	5	0.2
	_	6	0.1
	Machaniaal atropath . Tamparatura	7	0.2
	Mechanical strength +Temperature conditioned	8	0.3
	conditioned	9	0.3
		10	0.7
	As received	11	0.7
		12	8.0
		13	8.0
Paraffin oil test	Simulated wearing treatment	14	0.7
		15	0.6
	Mark a single stress with a Tanan angle and	16	1.4
	Mechanical strength +Temperature	17	1.6
	conditioned	18	1.6
Flow conditioning: Sing	le filter: 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	No irritation or	
known to be likely to cause irritation or any other adverse effect to health.	any other adverse	Pass
	effect to health	

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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	Appendix 3	Fa55
to burn for more than 5 s after removal from the flame.		

Appendix 3: Summarization of Test Data

Flammability

Condition	Sample No.	Result
As received	1	Burn for 0.4s
As received	2	Burn for 0.4s
Temperature	3	Burn for 0.5s
conditioned	4	Burn for 0.5s

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 Appendix 4	Pass
exceed an average of 1,0 % (by volume)	Appendix 4	

Appendix 4: Summarization of Test Data

Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result				
	1	0.7031%				
As received	2	0.7015%	Mean value :0.70%			
	3	0.7023%				



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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 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 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 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 exhalation valve	



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Clause 7.16 Breathing Resistance*

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

Test Requireme	nt	Results	Comment			
The penetration requirements of t		•	g half mask shall m	eet the		
Classification	Maximu	m permitted resis	tance (mbar)			Meet FFP1
	Inh	alation	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)

breathing resistance (mbar)																	
As received	Flow rate				1					2					3		
			Α	В	С	D	Е	Α	В	С	D	Е	Α	В	С	D	Е
	Inhalation	30 l/min	0.3	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
		95 l/min	1.7	1.8	1.7	1.8	1.7	1.8	1.7	1.7	1.8	1.7	1.7	1.8	1.7	1.7	1.8
	Exhalation	160 l/min	2.5	2.6	2.5	2.6	2.5	2.6	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.6	2.6
Simulated	Flow rate				4					5			6				
wearing treatment			Α	В	С	D	Е	Α	В	С	D	Е	Α	В	С	D	Е
	Inhalation	30 l/min	0.4	0.3	0.3	0.3	0.4	0.3	0.4	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3
		95 l/min	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.7	1.8	1.8	1.7	1.8	1.7	1.8	1.8
	Exhalation	160 l/min	2.5	2.6	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.6	2.5	2.5	2.6	2.6	2.5
Temperature	Flow r	ate			7					8					9		
conditioned			Α	В	O	D	Е	Α	В	С	D	Е	Α	В	С	D	E
	Inhalation	30 l/min	0.4	0.4	0.3	0.3	0.4	0.3	0.3	0.4	0.4	0.3	0.3	0.4	0.4	0.3	0.3
		95 l/min	1.7	1.8	1.8	1.7	1.7	1.8	1.7	1.7	1.8	1.8	1.7	1.8	1.7	1.8	1.7
	Exhalation	160 l/min	2.5	2.6	2.6	2.6	2.5	2.6	2.5	2.5	2.6	2.6	2.5	2.5	2.5	2.5	2.6

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 Requireme	<u>nt</u>	Results	Comment	
Valved particle fil After clogging the FFP1: 4 mbar, Ff	eathing resistance tering half masks: e inhalation resistances shall not FP2: 5 mbar, FFP3: 7 mbar at 95 esistance shall not exceed 3 mb	5L/min continuous flow	Optional for single shift device only	N.A
After clogging the	e filtering half masks: e inhalation and exhalation resis FP2: 4 mbar, FFP3: 5 mbar at 95			
Clause 7.17.3 Pe	netration of filter material			
All types (valved meet the clogging	and valveless) of particle filter g requirement shall also meet th	e requirements.		
All types (valved	and valveless) of particle filter requirement shall also meet th Maximum penetration	n of test aerosol		
All types (valved neet the clogging Classificatio	and valveless) of particle filter g requirement shall also meet th	n of test aerosol	Optional for single shift device only	N.A
All types (valved neet the clogging Classificatio	and valveless) of particle filter g requirement shall also meet th Maximum penetration Sodium chloride test 95 l/min	n of test aerosol Paraffin oil test 95 l/min	Optional for single	N.A
All types (valved neet the clogging Classificatio	and valveless) of particle filter requirement shall also meet th Maximum penetration Sodium chloride test 95 l/min %	n of test aerosol Paraffin oil test 95 l/min %	Optional for single	N.A
All types (valved meet the clogging Classificatio n	and valveless) of particle filter requirement shall also meet the Maximum penetration Sodium chloride test 95 l/min % max.	n of test aerosol Paraffin oil test 95 l/min % max.	Optional for single	N.A

Clause 7.18 Demountable Parts

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

(2.11) (0.1200) (1.11)		
Test Requirement	Results	Comment
All demountable parts (if fitted) shall be readily connected and secured,	Comply	Pass
where possible by hand		Pass

Test	Uncertainty
Total inward leakage	2.98%
Penetration of filter material	1.00%
Flammability	1.00%
Carbon dioxide content of the inhalation air	0.93%
Breathing resistance	1.90%

*: This test standard is carried out by external laboratory accredited by CNAS (China National Accreditation Service for Conformity Assessment) L10118.



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