

Test Report

Applicant: Mezorrison Health Science & Technology (Shenzhen) Co.,Ltd.
Address: No.12 Yuhe Road, Shiyan Town, Baoan District, Shenzhen

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

Product name: Filtering Half Mask
Model: MZC-KZ
Trade mark: Mezorrison
Manufacturer: Mezorrison Health Science & Technology (Shenzhen) Co.,Ltd.
Address: 2nd floor, Gaoke building, No.8 Tangkeng Rd, Shiyan, Baoan district, Shenzhen, China
Classification: FFP2 NR
Sample quantity: 80 Pcs
C2 Sampling done by APPLUS+ with ID number : 20/32302101

Sample Received Date: Nov. 02, 2020
Testing Period: Nov. 02, 2020~ Nov. 08, 2020

Test Requirement:

According to the requirement of the Module C2 (SPC CE-062_EN M3 PPE) of Applus+, the test item(s) of the sample is according to the standard EN 149:2001+A1:2009.

Test Result(s): Please refer to the following page(s)

Test Method: Please refer to the following page(s)

Compiled by: Maney

Reviewed by: Ada

Approved by: Mark Liaw

Date: 2020-11-09

Summary of assessment*

Clause	Assessment
7.3 Visual inspection	Pass
7.5 Material	Pass
7.8 Finish of parts	Pass
7.9.1 Total inward leakage	Pass
7.9.2 Penetration of filter material	Pass
7.12 Carbon dioxide content of the inhalation air	Pass
7.16 Breathing resistance	Pass

Key

Pass	Requirement satisfied.
NRq	The clauses were not required.
Fail	Requirement not satisfied. Refer to the "Result details" section for more information.
N.A.	Requirement not applicable.

Test	Uncertainty
Total inward leakage	6.40 %
Penetration of filter material (NaCl)	1.60 %
Penetration of filter material (Paraffin Oil)	1.78 %
Carbon dioxide content of the inhalation air	5.34 %
Breathing resistance (30 L/min)	3.60 %
Breathing resistance (95 L/min)	2.20 %
Breathing resistance (160 L/min)	2.00 %

* Assessment relates only to those specimens which were tested and subjects in this report.

Test Result

Respiratory Protective Devices — Filtering Half Masks to Protect against Particles — Requirements, Testing, Marking
(EN 149:2001+A1:2009)

Clause 7.3 Visual inspection

Test Requirement	Results	Comment
Marking and the information supplied by the manufacturer, requirements refer to clause 9 and clause 10.	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 face piece 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	Pass
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	Pass

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
<p>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:</p> <p style="padding-left: 40px;">25% for FFP1 11% for FFP2 5% for FFP3</p> <p>and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than:</p> <p style="padding-left: 40px;">22% for FFP1 8% for FFP2 2% for FFP3</p>	Detail refer to Appendix 1	Pass

Appendix 1: Summarization of Test Data

Subject	Sample	Condition	Normal Breathing (%)	Head Side/Side (%)	Head Up/Down (%)	Speak Loudly (%)	Normal Breathing (%)	Mean (%)
Zhang	1#	A.R.	3.4	3.5	3.7	3.8	3.5	3.58
Fan	2#	A.R.	2.8	2.9	3.1	3.2	2.9	2.98
Yan	3#	A.R.	3.6	3.7	3.9	4.0	3.7	3.78
Huang	4#	A.R.	4.4	4.5	4.6	4.7	4.5	4.54
Yang	5#	A.R.	2.2	2.3	2.5	2.6	2.3	2.38
Shi	6#	T.C.	5.7	5.8	5.9	6.0	5.8	5.84
Huang	7#	T.C.	2.5	2.6	2.7	2.9	2.6	2.66
Chen	8#	T.C.	3.7	3.8	3.9	4.1	3.8	3.86
Lei	9#	T.C.	4.3	4.4	4.6	4.7	4.4	4.48
Shen	10#	T.C.	2.6	2.7	2.9	3.1	2.7	2.80

Facial Dimension:

Subject	Length of Face (mm)	Width of Face (mm)	Depth of Face (mm)	Width of Mouth (mm)
Zhang	138	148	125	55
Fan	108	145	125	55
Yan	128	158	140	58
Huang	110	148	121	44
Yang	114	148	114	50
Shi	120	165	115	46
Huang	130	187	117	52
Chen	110	144	105	57
Lei	103	137	121	53
Shen	115	136	110	54

Clause 7.9.2 Penetration of Filter Material

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

Test Requirement			Results	Comment
The penetration of the filter of the particle filtering half mask shall meet the requirements of the following table.			Detail refer to Appendix 2	Pass
Classification	Maximum penetration of test aerosol (%)			
	Sodium chloride test 95 L/min	Paraffin oil test 95 L/min		
FFP1	20	20		
FFP2	6	6		
FFP3	1	1		

Appendix 2: Summarization of Test Data

Penetration of filter material

Aerosol	Condition	Sample No.	Penetration (%)		Assessment
			Average in 30s after 3 min	Max. during exposure	
Sodium chloride test	A.R.	11#	0.90	/	Pass
		12#	0.76	/	
		13#	0.79	/	
	S.W.	17#	0.89	/	
		18#	0.82	/	
		19#	0.80	/	
	M.S. + T.C.	23#	/	0.81	
		24#	/	0.80	
		25#	/	0.87	
Paraffin oil test	A.R.	14#	0.49	/	
		15#	0.49	/	
		16#	0.40	/	
	S.W.	20#	0.26	/	
		21#	0.25	/	
		22#	0.26	/	
	M.S. + T.C.	26#	/	1.03	
		27#	/	1.12	
		28#	/	1.11	
Flow conditioning: 95.0 L/min					

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 3	Pass

Appendix 3: Summarization of Test Data

Carbon Dioxide Content of The Inhalation Air

Condition	Sample No.	Result		Assessment
A.R.	29#	0.39%	Mean value 0.38%	Pass
	30#	0.35%		
	31#	0.39%		

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 filtering half masks and shall meet the requirements as the following table.				Detail refer to Appendix 4	Pass
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 4: Summarization of Test Data

Specimen	Condition	Inhalation(mbar)		Exhalation resistance(mbar)				
		At 30 L/min	At 95 L/min	At 160 L/min				
				A	B	C	D	E
32#	A.R.	0.48	1.44	2.03	2.04	2.03	2.04	2.05
33#		0.48	1.46	2.01	2.02	2.03	2.02	2.01
34#		0.50	1.45	2.02	2.02	2.03	2.04	2.03
35#	S.W.	0.53	1.48	2.07	2.08	2.09	2.08	2.08
36#		0.51	1.50	2.07	2.07	2.08	2.07	2.09
37#		0.51	1.51	2.09	2.10	2.11	2.10	2.11
38#	T.C.	0.43	1.40	1.96	1.97	1.98	1.98	1.97
39#		0.45	1.41	2.00	2.01	1.99	2.02	2.01
40#		0.45	1.39	1.98	1.99	1.98	1.97	1.99
/	T.C.+F.C.	/	/	/	/	/	/	/
/		/	/	/	/	/	/	/
/	F.C.	/	/	/	/	/	/	/

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

Sample photo(s):



Fig.1



Fig.2



Fig.3



Fig.4



Fig.5



Fig.6

****End of Report****

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