Microtest
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TL-941

Test Report

Report No：MTI20111105P001

Date of issue： Nov 17, 2020

Client	Shenzhen HJR Electronics Technology Co.,LTD.
Manufacturer	Shenzhen HJR Electronics Technology Co.,LTD.
Product	Particle filtering half mask
Model	HJR-CN99-11B
Test Type	Commissioned inspection

Shenzhen Microtest Co., Ltd.
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Product	Particle filtering half mask	Sample No.	MTI20111105-1-S0001
Brand/Trademark	HJR	Model	HJR-CN99-11B
Client	Shenzhen HJR Electronics Technology Co.,LTD.	Test Type	Commissioned inspection
Client Address	5 / F Building A3 Xinjianxing Science and Technology Industrial Park, No. 3333, Guangqiao Avenue, Gongming Street, Guangming New District, Shenzhen City, Guangdong Province, China	Sample Number	90 pcs
Date of Tests	2020.11.11-2020.11.16		
Test Specification	EN 149:2001+A1:2009		
Basis of Judgment	EN 149:2001+A1:2009		
Classification	FFP2 NR		
Test Result	The sample has been tested and the test items meet the requirements of EN 149:2001+A1:2009.		
Remarks	"---" in the report means this item is not applicable,"/" in the report means this item is blank,"N/A"in the report means this item is not application.		

Item Name	File No	Uncertainty	
Penetration of filter material	MTI-SOP-PH-U005	u_{rel} =2.1%,k=2	
Carbon dioxide content of the inhalation air	MTI-SOP-PH-U007	u_{rel} =1.8%,k=2	
Total inward leakage	MTI-SOP-PH-U008	u_{rel} =1.8%,k=2	
Breathing resistance	MTI-SOP-PH-U006	30L/min	u_{rel} =2.5%,k=2
		95L/min	u_{rel} =2.4%,k=2
		160L/min	u_{rel} =2.3%,k=2

Compiled: Hong. Pu Reviewed: Daniel . shi Approved: Tom Xue

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No.	Test Items	Spec Chapter	Requirements	Test Data	Assessment
1	Visual inspection	7.3	The visual inspection shall also include the marking and the information supplied by the manufacturer.	Meet the requirements	Pass
2	Material	7.5	Meet the requirements of 7.5	Meet the requirements	Pass
3	Practical performance	7.7	The particle filtering half mask shall undergo practical performance tests under realistic conditions.	Meet the requirements	Pass
4	Finish of parts	7.8	Parts of the device likely to come into contact with the wearer shall have no sharp edges or burrs.	Meet the requirements	Pass
5	Total inward leakage	7.9.1	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.	Test results are shown in Annex A Table 7.9.1-A&B.	Pass
6	Penetration of filter material	7.9.2	Sodium chloride test 95l/min:FFP1≤20%,FFP2≤6%, FFP3≤1%. Paraffin oil test 95l/min:FFP1≤20%,FFP2≤6%, FFP3≤1%.	Test results are shown in Annex A Table 7.9.2.	Pass
7	Compatibility with skin	7.10	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.	Meet the requirements	Pass
8	Flammability	7.11	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.	A.R.: 29#:not burn 30#: not burn T.C.: 31#: not burn 32#: not burn	Pass
9	Carbon dioxide content of the inhalation air	7.12	The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by volume).	A.R.: 33#:0.79% 34#:0.80% 35#:0.83% Mean:0.81%	Pass

10	Head harness	7.13	Meet the requirements of 7.13	Meet the requirements	Pass
11	Field of vision	7.14	The field of vision is acceptable if determined so in practical performance tests.	Meet the requirements	Pass
12	Exhalation valve(s)	7.15	Meet the requirements of 7.15	Only applicable to Exhalation valve(s) Particle filtering half mask.	N/A
13	Breathing resistance	7.16	Inhalation 30 l/min:FFP1≤0.6mbar,FFP2≤0.7mbar,FFP3≤1.0mbar. Inhalation 95 l/min:FFP1≤2.1mbar,FFP2≤2.4mbar,FFP3≤3.0mbar. Exhalation 160 l/min:FFP1≤3.0mbar,FFP2≤3.0mbar,FFP3≤3.0mbar.	Test results are shown in Annex A Table 7.16.	Pass
14	Demountable parts	7.18	All demountable parts (if fitted) shall be readily connected and secured, where possible by hand.	/	N/A

Note: A.R.:As received S.W.: Simulated wearing treatment M.S.:Mechanical strength
T.C.:Temperature conditioning F.C.:Flow conditioning

Annex A:Summarization of Test Data

Table 7.9.1-A Total inward leakage test data

Test specification:EN 149:2001+A1:2009 Clause 8.5

Subject	No.	Condition	Walk(%)	Head Side/side(%)	Head Up/down(%)	Talk(%)	Walk(%)	Mean(%)
Harper	1#	A.R.	2.46	2.90	4.12	5.65	4.13	3.85
John	2#	A.R.	3.50	5.20	6.63	5.02	3.74	4.82
Margaery	3#	A.R.	2.66	5.19	4.15	3.70	2.79	3.70
Noak	4#	A.R.	3.39	3.04	2.76	2.41	4.15	3.15
Shane	5#	A.R.	3.77	3.78	3.85	4.76	3.76	3.98
Baron	6#	T.C.	2.50	3.36	2.16	1.51	1.43	2.19
Elaine	7#	T.C.	3.95	4.74	3.69	3.48	2.59	3.69
Lucy	8#	T.C.	2.49	3.50	3.47	4.38	3.48	3.46
Lani	9#	T.C.	2.54	2.53	2.89	3.76	2.94	2.93
Hong	10#	T.C.	5.08	5.53	5.98	4.22	4.91	5.14

Table 7.9.1-B Facial dimension

Subject	Face Length (mm)	Face Width (mm)	Face Depth (mm)	Mouth Width (mm)
Harper	133	149	116	65
John	122	140	123	58
Margaery	125	142	125	54
Noak	110	138	115	57
Shane	110	142	122	60
Baron	110	140	105	56
Elaine	102	142	103	59
Lucy	99	142	108	55
Lani	135	150	130	51
Hong	106	138	115	57

Table 7.9.2 Penetration of filter material

Test specification:EN 149:2001+A1:2009 Clause 8.11

Aerosol	Condition	Sample No.	Average penetration after 3min (%)	Maximum penetration during exposure (%)
Sodium chloride test Flow：95L/min Aerosol concentration：11 mg/m³	As received	11#	0.25	/
		12#	0.10	/
		13#	0.11	/
	Simulated wearing treatment	14#	0.07	/
		15#	0.09	/
		16#	0.05	/
	Mechanical strength+ Temperature conditioned	17#	/	0.12
		18#	/	0.17
		19#	/	0.14
Paraffin oil test Aerosol concentration：21 mg/m³	As received	20#	0.23	/
		21#	0.26	/
		22#	0.19	/
	Simulated wearing treatment	23#	0.18	/
		24#	0.17	/
		25#	0.19	/
	Mechanical strength+ Temperature conditioned	26#	/	0.43
		27#	/	0.70
		28#	/	0.51

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Table 7.16 Breathing resistance(mbar)

Test specification: EN 149:2001+A1:2009 Clause 8.9

	Flow rate		36#					37#					38#				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
As received	Inhalation	30 l/min	0.53	0.53	0.54	0.54	0.53	0.56	0.55	0.55	0.54	0.54	0.51	0.52	0.51	0.52	0.53
		95 l/min	1.84	1.84	1.85	1.86	1.85	1.86	1.87	1.87	1.86	1.85	1.81	1.82	1.82	1.83	1.84
	Exhalation	160l/min	2.88	2.88	2.89	2.90	2.90	2.90	2.90	2.91	2.91	2.90	2.92	2.93	2.93	2.92	2.91
	Flow rate		39#					40#					41#				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Simulated wearing treatment	Inhalation	30 l/min	0.54	0.54	0.54	0.55	0.55	0.57	0.58	0.57	0.56	0.56	0.57	0.57	0.57	0.56	0.55
		95 l/min	1.86	1.86	1.87	1.87	1.87	1.86	1.87	1.87	1.86	1.85	1.85	1.86	1.86	1.87	1.87
	Exhalation	160l/min	2.92	2.93	2.93	2.93	2.92	2.94	2.95	2.96	2.95	2.94	2.95	2.96	2.95	2.95	2.94
	Flow rate		42#					43#					44#				
			A	B	C	D	E	A	B	C	D	E	A	B	C	D	E
Temperature conditioned	Inhalation	30 l/min	0.55	0.56	0.57	0.56	0.56	0.55	0.55	0.56	0.56	0.55	0.54	0.54	0.55	0.55	0.54
		95 l/min	1.81	1.82	1.82	1.83	1.83	1.82	1.83	1.83	1.84	1.84	1.79	1.80	1.81	1.81	1.82
	Exhalation	160l/min	2.94	2.95	2.94	2.93	2.93	2.92	2.93	2.93	2.94	2.94	2.92	2.92	2.93	2.93	2.94

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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Pictures

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2.Client Address:	5 / F Building A3 Xinjianxing Science and Technology Industrial Park, No. 3333, Guangqiao Avenue, Gongming Street, Guangming New District, Shenzhen City, Guangdong Province, China
3.Test environmental/conditions:	The test items are carried out under the conditions specified in the corresponding specifications (except where noted)