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Issue Date: 2020-09-23

Information confirmed by applicant: Filtering half mask Quantity: 70 pieces Lot number: Model: MSNF-01

Standard Adopted:

EN 149:2001+A1:2009 <Respiratory protective devices. Filtering half masks to protect against particles. Requirements, testing, marking>

Date Received/Date Test Started: 2020-09-15

Conclusion:

The testing results conform with standard EN 149:2001+A1:2009 FFP2.

7.1 General	М
7.2 Nominal values and tolerances	
7.3 Visual inspection	М
7.4 Packaging	М
7.5 Material	М
7.7 Practical performance	М
7.8 Finish of parts	М
7.9.1 Total inward leakage	М
7.9.2 Penetration of filter material	М
7.10 Compatibility with skin	M resting and Certic
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Approved By:

Zishan Guo

ZiShan Guo Senior Engineer

Page 1 of 24





(Electronic version)

	Issue Date: 2020-09-23
7.11 Flammability	Μ
7.12 Carbon dioxide content of the inhalation air	Μ
7.13 Head harness	Μ
7.14 Field of vision	Μ
7.16 Breathing resistance	Μ
9 Marking	Μ
10 Information to be supplied by the manufacturer	Μ
Note: "M"-Meet the standard's requirement "F"-Fail to meet the standard's requirement	uirement ""-No comment
Remark:	

All the tested items are tested under the standard condition (except for indication).

Copies of the report are valid only re-stamped.

The experiment was carried out at No.1, Zhujiang Road, Panyu District, Guangzhou, Guangdong, P.R.China.



Approved By:

Zishan Guo

ZiShan Guo Senior Engineer





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7.1 General

Test Method: EN 149:2001+A1:2009 8.1

	Results		
In all tests all test samples shall meet the requirements. EN 149:2001+A1:2009		Pass	
Conclusion			







(Electronic version)

7.2 Nominal values and tolerances

Test Method: EN 149:2001+A1:2009 7.2

Requirement	Results
Unless otherwise specified, the values stated in this European Standard are expressed as nominal values. Except for temperature limits, values which are not stated as maxima or minima shall be subject to a tolerance of \pm 5 %. Unless otherwise specified, the ambient temperature for testing shall be (16 - 32) ° C, and the temperature limits shall be subject to an accuracy of \pm 1 °C. EN 149:2001+A1:2009	/
Conclusion	







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7.3 Visual inspection

Test Method: EN 149:2001+A1:2009 8.2

	Results	
The visual inspection shall the manufacturer. EN 149:2001+A1:2009	Pass	
Conclusion	Pass	









7.4 Packaging

Test Method: EN 149:2001+A1:2009 8.2

	Results	
Particle filtering half masks are protected against mecha EN 149:2001+A1:2009	Pass	
Conclusion	Pass	







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7.5 Material

Test Method: EN 149:2001+A1:2009 8.2

Results:

Requirement			Results		
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. EN 149:2001+A1:2009	Pass				
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. EN 149:2001+A1:2009		1	Neither facepiece nor straps have mechanical failure		
	S.W.	2	Neither facepiece nor straps have mechanical failure		
		3	Neither facepiece nor straps have mechanical failure		
When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering half mask shall not collapse.		4	No collapse		
EN 149:2001+A1:2009	S.W. +T.C	5	No collapse		
		6	No collapse		
Any material from the filter media released by the air flow through the filter shall not constitute a hazard or nuisance for the wearer. EN 149:2001+A1:2009					
Conclusion Pass	-				

Remark:

S.W.: Simulated wearing treatment S.W.+T.C.: Simulated wearing treatment and Temperatu









7.7 Practical performance

Test Method: EN 149:2001+A1:2009 8.4

Results:

Requirement		Condition	Sample No.	Results	
Head harness	Head harness should be comfort. EN 149:2001+A1:2009		A.R.	1	Has the feeling of comfortable wearing
comfort				2	Has the feeling of comfortable wearing
Security of	Fastenings are safe and reliable. EN 149:2001+A1:2009			1	All fastenings are firm
fastenings				2	All fastenings are firm
Field of vision	Field of vision is acceptable.	1		Having a wider visual field	
Field of vision	EN 149:2001+A1:2009			2	Having a wider visual field
Conclusion	n	Pass			

Remark:

A.R.: As Received









7.8 Finish of parts

Test Method: EN 149:2001+A1:2009 8.2

	Results	
Parts of the device likely to edges or burrs. EN 149:2001+A1:2009	Pass	
Conclusion	Pass	









7.9.1 Total inward leakage

Test Method: EN 149:2001+A1:2009 8.5,8.11

General:

The laboratory tests shall indicate that the particle filtering half mask can be used by the wearer to protect with high probability against the potential hazard to be expected. The total inward leakage consists of three components: face seal leakage, exhalation valve leakage (if exhalation valve fitted) and filter penetration.

Test condition:

Aerosol particle: NaCl Particulate sampling flow: 1L/min NaCl particle concentration: 8mg/m³

Test item	Requirement	Results	Conclusion	
Total inward	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 \times 5 exercises) for total inward leakage shall be not greater than 11% for FFP2 EN 149:2001+A1:2009	≥46	50	Pass
теакаде	and, in addition, at least 8 out of the 10 individual wearer arithmetic means for the total inward leakage shall be not greater than 8% for FFP2 EN 149:2001+A1:2009		10	







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Total inward leakage test data:

		Total inward leakage				
Contractor	A a4: am	(%)				
Condition	Action	Action The test subject				
		95#	58#	105#	93#	50#
	1	0.9	0.9	2.4	1.2	1.7
A.R.	2	1.3	0.9	3.1	1.2	4.3
	3	1.2	0.9	2.9	1.0	4.5
	4	1.3	1.2	2.7	1.2	4.7
	5	1.0	1.0	2.3	1.2	6.6
Total inward leakage (%)		1.1	1.0	2.7	1.2	4.4

			Т	Total inward leakage						
Condition	Action			(%)						
Condition	Action		The test subject							
		96#	108#	33#	110#	100#				
	1	1.9	10.0	1.7	2.1	4.3				
	2	1.8	5.0	1.5	2.4	4.1				
T.C.	3	1.8	4.1	1.7	5.8	3.6				
	4	2.3	4.9	5.3	4.6	2.9				
	5	1.8	3.9	3.3	6.2	3.4				
Total inward leakage (%)		1.9	5.6	2.7	4.2	3.7				

Remark:

A.R.: As Received T.C.: Temperature conditioning

Walking at a speed of 6 km/h to complete the following actions:

1. Walking for 2 min without head movement or talking;

2. Turning head from side to side (approx. 15 times), as if inspecting the walls of a tunnel for 2 min;

3. Moving the head up and down (approx. 15 times), as if inspecting the roof and floor for 2 min;

4. Reciting the alphabet or an agreed text out loud as if communicating with a colleague for 2 min;

5. Walking for 2 min without head movement or talking.







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Facial Dimensions:

The test subject	Facial Dimensions (mm)					
The test subject	Length of face	Width of face	Depth of face	Width of mouth		
95#	108	147	126	49		
58#	115	150	132	53		
105#	117	148	133	47		
93#	112	164	137	49		
50#	102	151	124	50		
96#	107	150	129	50		
108#	116	146	119	46		
33#	111	143	126	45		
110#	109	148	118	45		
100#	113	135	125	49		









7.9.2 Penetration of filter material

Test Method: EN 149:2001+A1:2009 8.11

General:

The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1 of the standard. A total of 9 samples of particle filtering half masks shall be tested for each aerosol. Testing in accordance with 8.11 using the Penetration test according to EN 13274-7, shall be performed on:

3 samples as received

3 samples after the simulated wearing treatment described in 8.3.1.

Testing in accordance with 8.11 using the Exposure test with a specified mass of test aerosol of 120 mg, and for particle filtering devices claimed to be re-usable additionally the Storage test, according to EN 13274-7, shall be performed:

for non-re-usable devices on:

3 samples after the test for mechanical strength in accordance with 8.3.3 followed by temperature conditioning in accordance with 8.3.2.

for re-usable devices on:

3 samples after the test for mechanical strength in accordance with 8.3.3 followed by temperature conditioning in accordance with 8.3.2. and followed by one cleaning and disinfecting cycle according to the manufacturer's instruction.

Test condition:

Flow through filter: 95 L/min NaCl aerosol particles concentration: 7mg/m³ Paraffin oil aerosol concentration: 20mg/m³







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Results:

		Pen	etration (%)	Requirement	
Aerosol	Condition	3 min	Max. during exposure	(%)	Conclusion
	A.R.	0.515			
	A.R.	0.592			
	A.R.	0.560	0.828		Pass
S. dimm	S.W.	0.795	0.828		
Sodium	S.W.	0.828			
chior lue test	S.W.	0.812			
	M.S.+T.C.	1.26	1.31	≤ 6	
	M.S.+T.C.	1.31			
	M.S.+T.C.	1.18		(FFP2)	
	A.R.	0.497		EN 149:2001+A1:2009	
	A.R.	0.537			
	A.R.	0.519	0.002		
Davaffin ail	S.W.	0.945	0.992		
test	S.W.	0.992			
	S.W.	0.977			
	M.S.+T.C.	5.72			
	M.S.+T.C.	5.07	5.72		
	M.S.+T.C.	5.40			

Remark:

A.R.: As Received S.W.: Simulated wearing treatment

M.S.+T.C.: Mechanical strength and Temperature conditioning









7.10 Compatibility with skin

Test Method: EN 149:2001+A1:2009 8.4,8.5

Requirem	ient	Condition	Sample No.	Results
Materials that may come is wearer's skin shall not be l	into contact with the known to be likely to	A.R.	1	Do not cause irritation
cause irritation or any oth health.	ner adverse effect to		2	Do not cause irritation
EN 149:2001+A1:2009			3	Do not cause irritation
			4	Do not cause irritation
			5	Do not cause irritation
		T.C.	6	Do not cause irritation
			7	Do not cause irritation
			8	Do not cause irritation
			9	Do not cause irritation
			10	Do not cause irritation
Conclusion	Pass			

Remark:

A.R.: As Received T.C.: Temperature conditioning









7.11 Flammability

Test Method: EN 149:2001+A1:2009 8.6

General:

The material used shall not present a danger for the wearer and shall not be of highly flammable nature. 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. The particle filtering half mask does not have to be usable after the test.

Test condition:

Dummy head linear speed: (60 ± 5) mm/s The distance between facepiece and burner: (20 ± 2) mm The flame heigt: (40 ± 4) mm The temperature of the flame: (800 ± 50) °C

Results:

Sample No.	Condition	Results (s)	Requirement (s)	Conclusion
1	A.R.	0.0		
2	A.R.	0.0	≤ 5	Daga
3	T.C.	0.0	EN 149:2001+A1:2009	rass
4	T.C.	0.0		

Remark:

A.R.: As Received T.C.: Temperature conditioning









7.12 Carbon dioxide content of the inhalation air

Test Method: EN 149:2001+A1:2009 8.7

General:

The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1.0 % (by volume).

Test condition:

Carbon dioxide concentration: 0.06% Breathing rate: 25 cycles/min Breathing capacity: 2.0 L/stroke The air flow: 0.5 m/s

Results:

Sample No.	Condition	Measured value (%)	Average (%)	Requirement (%)	Conclusion
1	A.R.	0.33			
2	A.R.	0.37	0.4	≤1	Pass
3	A.R.	0.37		EN 149:2001+A1:2009	

Remark:

A.R.: As Received









7.13 Head harness

Test Method: EN 149:2001+A1:2009 8.4,8.5

Results:

Requirement	Condition	Sample No.	Results
The head harness shall be designed so that the particle filtering half mask can be donned and		1	Pass
removed easily. The head harness shall be adjustable or self-adjusting and shall be		2	Pass
sufficiently robust to hold the particle filtering half mask firmly in position and be capable of	A.R.	3	Pass
maintaining total inward leakage requirements for the device.		4	Pass
EN 149:2001+A1:2009		5	Pass
	T.C.	6	Pass
		7	Pass
		8	Pass
		9	Pass
		10	Pass
Conclusion Pass			

Remark:

A.R.: As Received T.C.: Temperature conditioning









7.14 Field of vision

Test Method: EN 149:2001+A1:2009 8.4

Results:

Requ	irement	Condition	Results
The field of vision is acc practical performance tests. EN 149:2001+A1:2009	ceptable if determined so in	A.R.	The two samples both have a wider visual field.
Conclusion	Pass		
Remark:			

Kemark:

A.R.: As Received









7.16 Breathing resistance

Test Method: EN 149:2001+A1:2009 8.9

General:

The breathing resistances apply to valved and valveless particle filtering half masks and shall meet the requirements of Table 2 of the standard.

Results:

Sample No.	Condition	Inhalation resistance (mbar)		Exhalation resistance (mbar)				
	Condition	30 L/min	95 L/min					
				Α	В	С	D	Е
1		0.39	1.17	2.20	2.20	2.22	2.10	2.19
2	A.R.	0.35	1.38	2.17	2.21	2.20	2.13	2.20
3		0.35	1.27	2.23	2.17	2.20	2.19	2.20
1		0.33	1.04	1.97	1.93	1.92	1.93	1.95
2	T.C.	0.33	1.17	2.02	1.99	2.03	2.04	2.00
3		0.31	1.14	2.11	2.04	2.07	2.11	2.09
1		0.31	1.26	2.00	2.04	2.04	2.07	2.02
2	S.W.	0.39	1.22	2.11	2.09	2.01	2.09	2.04
3		0.32	1.20	2.10	2.04	2.07	2.10	2.11
Dager			≤2.4	≤3.0				
Requirement (mbar)		(FFP2)	(FFP2)			(FFP2)		
		EN 149:2001+A1:2009						
Conclusion		Pass						

Remark:

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

A.R.: As Received; T.C.: Temperature conditioning; S.W.: Simulated wearing treatment







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9 Marking

Test Method: EN 149:2001+A1:2009 9

Requirement	Results
 9.1 Packaging The following information shall be clearly and durably marked on the smallest commercially available packaging or legible through it if the packaging is transparent. 9.1.1 The name, trademark or other means of identification of the manufacturer or supplier. 9.1.2 Type-identifying marking. 9.1.3 Classification The appropriate class (FFP1, FFP2 or FFP3) followed by a single space and then: "NR" if the particle filtering half mask is limited to single shift use only. Example: FFP3 NR, or "R" if the particle filtering half mask is re-usable. Example: FFP2 R D. 9.1.4 The number and year of publication of this European Standard. 9.1.5 At least the year of end of shelf life. The end of shelf life may be informed by a pictogram as shown in standand Figure 12a, where yyyy/mm indicates the year and month. 9.1.6 The sentence 'see information supplied by the manufacturer', at least in the official language(s) of the country of destination, or by using the pictogram as shown in standard Figure 12b. 9.1.7 The manufacturer's recommended conditions of storage (at least the temperature and humidity) or equivalent pictogram, as shown in standand Figures 12c and 12d. 9.1.8 The packaging of those particle filtering half masks passing the dolomite clogging test shall be additionally marked with the letter "D". !This letter shall follow the classification marking preceded by a single space. Example FFP2 R D. EN 149:2001+A1:2009 	Pass
	Inspection & Testing services





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	•					
9.2 Particle filtering half n	nask					
Particle filtering half masks	s complying with this European Standard shall be clearly					
and durably marked with the	e following:					
2.1 The name, trademark or other means of identification of the manufacturer or						
supplier.						
9.2.2 Type-identifying mark	ing.					
9.2.3 The number and year	of publication of this European Standard.					
9.2.4 Classification						
The appropriate class (FFP	1, FFP2 or FFP3) followed by a single space and then:					
"NR" if the particle filterin	g half mask is limited to single shift use only. Example:					
FFP3 NR, or "R" if the parti	cle filtering half mask is re-usable. Example: FFP2 R D.					
9.2.5 If appropriate the lette	er D (dolomite) in accordance with clogging performance.					
This letter shall follow the	e classification marking preceded by a single space (see					
9.2.4). Examples FFP3 NR	D. FFP2 R D.					
9.2.6 Sub-assemblies and o	components with considerable bearing on safety shall be					
marked so that they can be i	dentified.	Pass				
EN 149:2001+A1:2009						
Conclusion	Pass					







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10 Information to be supplied by the manufacturer

Test Method: EN 149:2001+A1:2009 10

Results:

	Results	
10.1 Information supplied		
commercial available packag		
10.2 Information supplied by the manufacturer shall be at least in the official		
language(s) of the country of destination.		
10.3 The information supplied by the manufacturer shall contain all information		
necessary for trained and qualified persons on		
- application/limitations;		
- checks prior to use:		
- donning fitting:		
– uoming, nung,		
– maintenance (e.g. cleaning, disinfecting), if applicable:		
- storage:		
- the meaning of any symbols/pictograms used of the equipment.		
10.4 The information shall be clear and comprehensible. If helpful, illustrations, part		
numbers, marking shall be a		
10.5 Warning shall be given against problems likely to be encountered, for example:		
- fit of particle filtering half mask (check prior to use);		Dese
- it is unlikely that the requirements for leakage will be achieved if facial hair passes		Pass
under the face seal;		
– air quality (contaminants, oxygen deficiency);		
- use of equipment in explosive atmosphere.		
10.6 The information shall provide recommendations as to when the particle filtering		
half mask shall be discarded.		
10.7 For devices marked "INK", a warning shall be given that the particle intering half		
$\frac{1}{40\cdot 2001 + 1\cdot 2000}$		
EIN 149.2001+A1.2009		
		Testing and Certific
		siller tealing
		nodizg
Conclusion	Pass	Inspection & Testing services
		Improved & result services

-----End of Report-----