



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

Product:	children protective mask										
Report No.:	PTC21021800301C-EN01										
Client:	ONGGUAN DINGYANG PRODUCT CO.,LTD.										
Client Address:	Rm.201,191 Shipai Zhongxin Road, Shipai, Dongguan, Guangdong, China										
Manufacturer:	DONGGUAN DINGYANG PRODUCT CO.,LTD.										
Manufacturer Address:	Rm.201,191 Shipai Zhongxin Road, Shipai, Dongguan, Guangdong, China										
Contact:	Hu Wei ji										
Model(s):	DY-06										
Classification:	FFP2 NR										
Date of Tests:	2021.02.18~2021.02.24										

Signed for and on Behalf of PTC

Prepare by:

Checked by:

me

FICATION ŝ Approved by: * lim Mo

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Clause Concorrection Concorrection Concorrection	N 20	Assessment
7.3 Visual inspection	0,0	NOT TESTED
7.4 Packaging	8	PASS
7.5 Material	10 8 C	PASS
7.6 Cleaning and disinfecting	10 X0	N/A
7.7 Practical performance	10 50	PASS
7.8 Finish of parts	20 20	PASS
7.9.1 Total inward leakage		PASS
7.9.2 Penetration of filter material	8	PASS
7.10 Compatibility with skin	10 x0	PASS
7.11 Flammability	10 20	PASS
7.12 Carbon dioxide content of the inhalation air	0 0	PASS
7.13 Head harness	X	PASS
7.14 Field of vision	8	PASS
7.15 Exhalation valve	10 x 0	N/A
7.16 Breathing resistance	NO NO	PASS
7.17 Clogging	x0 x0	N/A
7.18 Demountable parts	20 20	N/A
9 Marking	8	NOT TESTED

Summary of assessment

Remark:

PASS: comply with requirement of standard

N/A: not application

NOT TESTED: the clause were not required

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Test Result:		
Requirement	Test Result	Conclusion
7.3 Visual inspection		
The visual inspection shall also include the marking and the information supplied by the manufacturer.	Not tested	Not tested
7.4 Packaging	In accordance	
Particle filtering half masks shall be offered for sale packaged in such a way that they are protected against mechanical damage and	with the	Pass
contamination before use.	requirement.	
7.5 Material		
Materials used shall be suitable to withstand handling and wear over		
the period for which the particle filtering half mask is designed to be	No mechanical failure after	
	undergoing the	
Any material from the filter media released by the air flow through the	conditioning described in	
filter shall not constitute a hazard or nuisance for the wearer.	8.3.1,	Pass
	No collapse	0 x0 x
After undergoing the conditioning described in 8.3.1 none of the particle	when	
filtering half masks shall have suffered mechanical failure of the facepiece or straps.	conditioned in	
lacepiece of straps.	accordance with	
When conditioned in accordance with 8.3.1 and 8.3.2 the particle filtering	8.3.1 and 8.3.2.	
half mask shall not collapse.		
7.6 Cleaning and disinfecting		
If the particle filtering half mask is designed to be re-usable, the	Single shift use	8 X X
materials used shall withstand the cleaning and disinfecting agents	only	N/A
and procedures to be specified by the manufacturer.	5° 5° 5° 5	
7.7 Practical performance		
The particle filtering half mask shall undergo practical performance tests	No imperfections	Pass
under realistic conditions	10 10 10 1	6 40 A
7.8 Finish of parts	No sharp edges or	0 8 8
Parts of the device likely to come into contact with the wearer shall	burrs.	Pass
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have no sharp edges or burrs.

7.9.1 Total inward leakage

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.

7.9.2 Penetration of filter material

The penetration of the filter of the particle filtering half mask shall meet the requirements of Table 1.

0.0	Sodium chloride test	Paraffin oil test 95
2 2 4	95 l/min	I/min
FFP1	≤ 20%	≤ 20%
FFP2	≤ 6% <	≤6%
FFP3	≤ 1%	≤ 1%

7.10 Compatibility with skin

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.

7.11 Flammability

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.

7.12 Carbon dioxide content of the inhalation air

The carbon dioxide content of the inhalation air (dead space) shall not exceed an average of 1,0 % (by

volume)

7.13 Head harness

The head harness shall be designed so that the particle filtering half mask can be donned and removed easily.

FFP2, Test results are shown in Annex A Table 7.9.1-A&B

Pass

FFP2 , Test results are shown in Annex A Table 7.9.2.

Pass

Pass

Pass

Pass

No irritation or any other adverse effect to health.

Test results are shown in Annex A Table 7.11.

Test results are shown in Annex A Table 7.12.

Head harness can be donned and removed easily,

Pass

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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.

7.14 Field of vision

The field of vision is acceptable if determined so in practical performance tests.

7.15 Exhalation valve

A particle filtering half mask may have one or more exhalation valve(s), which shall function correctly in all orientations.

If an exhalation value 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.

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.

When the exhalation valve housing is attached to the faceblank, it shall withstand axially a tensile force of 10 N applied for 10 s.

7.16 Breathing resistance

1 1 1 1	Maximum permitted resistance (mbar)							
Classification	Inha	Exhalation						
8 8 8	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					

7.17 Clogging 7.17.2 Breathing resistance

Valved particle filtering half masks:

After clogging the inhalation resistances shall not exceed:

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adjustable or self-adjusting and have sufficiently robust to hold the particle filtering half mask firmly.

Pass the practical performance tests.

Pass

No exhalation valve

N/A

are shown in Annex A Table 7.16.

FFP2. Test results

Pass

Single shift use only.

N/A



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FFP1: 4 mbar, FFP2: 5 mbar, FFP3: 7 mbar at 95L/min continuous flow The exhalation resistance shall not exceed 3 mbar at 160 L/min continuous flow

Valveless particle filtering half masks

After clogging the inhalation and exhalation resistances shall not exceed:

FFP1: 3 mbar, FFP2: 4 mbar, FFP3: 5 mbar at 95L/min continuous flow

7.17.3 Penetration of filter material

20 20	Sodium chloride test	Paraffin oil test 95
<u> </u>	95 l/min	I/min
FFP1	≤ 20%	≤ 20%
FFP2	≤ 6%	≤ 6%
FFP3	≤1%	0 _6 ≤1% _6 _0

7.18 Demountable parts

All demountable parts (if fitted) shall be readily connected and secured, where possible by hand

No demountable parts.

N/A

9 Marking

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 Figure 12a, where yyyy/mm

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Not tested

Not tested



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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 Figure 12b.

9.1.7 The manufacturer's recommended conditions of storage (at least the temperature and humidity) or equivalent pictogram, as shown in 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.

9.2 Particle filtering half mask

Particle filtering half masks complying with this European Standard shall be clearly and durably marked with the following:

9.2.1 The name, trademark or other means of identification of the manufacturer or supplier.

9.2.2 Type-identifying marking.

9.2.3 The number and year of publication of this European Standard.9.2.4 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.

9.2.5 If appropriate the letter D (dolomite) in accordance with clogging performance. This letter shall follow the classification marking preceded by a single space.

9.2.6 Sub-assemblies and components with considerable bearing on safety shall be marked so that they can be identified.

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Annex A: Summarization of Test Data

Table 7.9.1-A: Inward Leakage Test Data(Sample1)

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

Subject	Sample No.	Condition	Walk (%)	Head Side/side (%)	Head up/down (%)	Talk (%)	Walk (%)	Mean (%)
Lv	1	A.R	5.1	6.3	6.5	6.1	5.9	6.0
γũ γ	2	A.R	6.1	5.8	6.5	6.4	6.8	6.3
Zhong	3	A.R	5.2	6.3	6.1	6.7	6.2	6.1
Xu	4	A.R	5.7	5.0	6.1	6.4	5.2	5.7
Ma	5	A.R	6.0	5.1	5.5	5.8	6.4	5.8
Chen	6	T.C	5.5	6.1	5.8	5.7	5.6	5.7
Chen	7	T.C	5.5	5.5	6.5	6.7	5.8	6.0
Zhuo	8	T.C	5.3	5.6	5.4	5.5	5.4	5.4
Chen	9	T.C	5.6	5.8	5.8	6.9	6.5	6.1
Zhang	10	T.C	5.6	6.0	6.7	6.7	6.0	6.2

Table 7.9.1-B: Facial dimension

Subject	Face Length	Face Width	Face Depth	Mouth Width
Lv	113	139	104	53
C Xu Xo	120	135	112	55
Zhong	108	135	106	56
Xu	120	150	120	70
Ma	130	170	130	80
Chen	110	160	90	40
Chen	115	145	110	50
Zhuo	103	146	100	50
Chen	110	145	95	40
Zhang	144	141	101	54

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Table 7.9.2: Penetration of filter material(Sample1)

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

Aerosol	Condition	Sample No.	Penetration (%)	Assessment
Nº Nº Nº 3	6 20 20 20 20 V	N 11 N	0.2	5 5 5
	As received	12	0.1	
\$~ \$~ \$~ \$		13	0.1	\$`\$`\$
x0 x0 x0 x	0 10 10 10 10	14	0.1	20 20 2
Sodium chloride test	Simulated wearing treatment	15	0.1	8.8.8
1° 1° 1° 1	6 x x x x x x	16	0.1	8 8 5
		17	0.3	
	Mechanical strength + Temperature conditioned	18	0.2	5° 5° 5
		19	0.2	20 20 2
5 6 6 6	8, 8, 8, 8,	20	0.1	Pass
10 10 10 S	As received	21	0.1	Nº Nº 8
		22	0.1	
8° 8° 8° 8		23	0.1	8 8 6
Paraffin oil test	Simulated wearing treatment	24	0.3	20 20 1
5. 5. 5. 5	5. 6. 6. 6.	25	0.1	5, 5, 5
1º 1º 1º 1	6 x x x x x	26	0.3	1º 1º 1
	Mechanical strength + Temperature conditioned	27	0.2	
5° 5° 5° 5		28	0.1	5 5 6

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Table 7.11: Flammability(Sample1)

Test specification: EN 149:2001+A1:2009 Clause 8.6

Condition	Sample No.	Result	Assessment
	29	No burn	\$ \$ \$ \$ \$
As received	30	No burn	A A A A A
Tomporature conditioned	0 0 310 0	No burn	Pass
Temperature conditioned	32	No burn	

Table 7.12: Carbon dioxide content of the inhalation air(Sample1)

Test specification: EN 149:2001+A1:2009 Clause 8.7

Condition	Sample No.	Re	Assessment			
5° 5° 5° 5°	33	0.04	1 2 2 2 2 2 2 2	0 40 40 40		
As received	34	0.04	Mean value:	Pass		
	35	0.05	0.04			

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Table 7.16: Breathing resistance (mbar)(Sample1)

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As received	20 2	30			36 🤇			< .		37			- X.		38			
s received	Inhalation	l/min	5 6	0	0.46	20	20	20	20	0.47	2	2	5 2	0 2	0.49	20	2è	
	Innalation	95 I/min		a X	1.66		<. 	×.	1.7			1.71		1.65			X.	
5 5	Exhelation	160	A	В	С	D	E	A	В	С	D	E	A	в	С	D	E	
50 50	Exhalation	l/min	2.45	2.50	2.44	2.46	2.46	2.40	2.44	2.45	2.44	2.44	2.40	2.47	2.47	2.47	2.43	
	Flow Ra	te		с. — Т	39			2.0	20	40			, Ì.	6	41	.0		
Simulated	Inhalation 30 95 1/min	Ś	Ŕ	0.37	2	2	Ś	2	0.39	Ś	Ś	Ŕ	Ś	0.38		5		
wearing treatment		K	C é	0 6	1.40	ŝ,	20	20	20	1.39	5	2	5	0 2	1.41	Nº ,	30	
- C C	Exhalation 160 I/min	Exhibition 1	160	A	в	СС	D	Æ	Α	В	С	D	E	A	в	СC	P	E
8) 8)		l/min	2.08	2.12	2.12	2.11	2.11	2.05	2.09	2.07	2.10	2.04	2.10	2.04	2.06	2.03	2.04	
20 20	Flow Ra	te	2 á	0 á	42	×° .	20	20	20	43	2	5	6	e é	44	~ · ·	20	
emperature	20 X	30 I/min	o x	0	0.45	20	20	20	20	0.46	1	2	3 K	G .,	0.46	20	20	
conditioned	Inhalation	95 I/min	. ×	× ~	1.63		s.	× :	× .	1.61	×.	× .	_ ×	X C	1.63		с. ж	
the the	Exhalation	160	A	в	С	D	Έ	A	В	С	D	E	A	в	С	D	ΈE	
20 20		l/min	2.31	2.34	2.29	2.31	2.29	2.28	2.26	2.27	2.27	2.30	2.25	2.29	2.30	2.27	2.22	

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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Table 7.9.1-A: Inward Leakage Test Data(Sample2)

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

Subject	Subject Sample Cond		Walk (%)	Head Side/side (%)	Head up/down (%)	Talk (%)	Walk (%)	Mean (%)	
Lv	1	A.R	6.6	6.6	6.4	7.0	6.2	6.6	
र्रो। र्रो	2	A.R	6.3	6.1	6.9	6.7	6.9	6.6	
Zhong	3	A.R	6.5	6.6	6.3	6.6	6.2	6.4	
Xu	4	A.R	5.2	5.5	5.6	5.9	5.2	5.5	
Ma	5	A.R	5.9	5.5	6.5	6.6	5.9	6.1	
Chen	6	T.C	6.7	6.9	7.0	7.1	6.5	6.8	
Chen	279	T.C	5.6	6.8	6.6	6.8	6.2	6.4	
Zhuo	8	T.C	6.3	5.2	5.4	6.2	5.3	5.5	
Chen	9	T.C	5.6	5.4	6.2	6.2	6.9	6.1	
Zhang	10	T.C	5.3	5.7	5.7	6.9	5.5	5.8	

Table 7.9.1-B: Facial dimension

Subject	Face Length	Face Width	Face Depth	Mouth Width
C Lv C	113	139	104	53
Li	120	135	112	55
Zhong	108	135	106	56
Xu	120	150	120	70
Ma	130	170	130	80
Chen	(110)	160	90 0	40
Chen	115	145	110	50
Zhuo	103	146	100	50
Chen	110	145	95	40
Zhang	144	141	101	54

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Table 7.9.2: Penetration of filter material(Sample2)

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

Aerosol	Condition	Sample No.	Penetration (%)	Assessment
		11	0.1	
5° 5° 5° 5	As received	12	0.1	1 6° 6° 6°
x0 x0 x0 ;	0 20 20 20 20	13	0.10	x0 x0 x0
5, 5, 5, 5		14	0.1	5, 5, 5,
Sodium chloride test	Simulated wearing treatment	15	0.1	1º 1º 1
		16	0.2	
5° 5° 5° 5		17	0.3	8 6 6
20 20 20	Mechanical strength + Temperature conditioned	18	0.3	20 20 20
રે રે રે ર	remperature conditioned	19	0.2	2 2 2
10 10 10 X	6 10 10 10 10	20	0.1	Pass
<	As received	21	0.1	
10 10 10 10 10 10 10 10 10 10 10 10 10 1	10 20 20 20 20 X0	22	0.1	5 5 5
20 20 20	0 0 0 0 0	23	0.1	0.0.0
Paraffin oil test	Simulated wearing treatment	24	0.1	2 2 2
10 10 10 V	0 20 20 20 20 V	25	0.1	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
<. <. <. <	4. 6. 6. 6.	26	0.4	8 8 8
5° 5° 5° 3	Mechanical strength +	27	0.3	N N N
	Temperature conditioned	28	0.1	

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Table 7.11: Flammability(Sample2)

Test specification: EN 149:2001+A1:2009 Clause 8.6

Condition	Sample No.	Result	Assessment			
	29	No burn	\$ \$ \$ \$ \$			
As received	30	No burn	A A A A A			
Tomporature conditioned	0 0 310 0	No burn	Pass			
Temperature conditioned	32	No burn				

Table 7.12: Carbon dioxide content of the inhalation air(Sample2)

Test specification: EN 149:2001+A1:2009 Clause 8.7

Condition	Sample No.	Re	Assessment			
to to to	33	0.04	1 2° 2° 2° 2°			
As received	34	0.04	Mean value:	Pass		
	35	0.03	0.04			

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Table 7.16: Breathing resistance (mbar)(Sample2)

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2 2 C	Flow Ra	ite 🔷	2		36			2		37			Q		38		
10 10	Inhalation	30 I/min	5 2	<u>e</u> 2	0.52	Q.	20	20	20	0.48	~	2	5 2	0 2	0.49	20	2Ö
As received	malation	95 <u> /min</u>		e X	1.82		1.76			×.	1.75				5		
8° 8°	Exhalation	160	A	в	С	D	E	A	в	С	D	E	A	в	С	D	E
1º 1º	Exharation	l/min	2.58	2.51	2.56	2.58	2.59	2.58	2.56	2.59	2.53	2.56	2.53	2.51	2.49	2.54	2.51
	Flow Rate			6	39			2.6	20	40				6	41	.0	
Simulated	Inhalation	30 I/min	Q	Ŕ	0.46	2	Ś	2	8	0.47	Ś	Ś	Ŕ	Ŕ	0.44		Ś
wearing treatment	malation	95 I/min	2	0 6	1.72	Nº.	20	20	20	1.73	2	2	5	0 2	1.71	Nº X	30
	- 20	160	A	в	CC	D	E	Α	В	С	D	E	A	в	C	D	E
5, 5,	Exhalation	l/min	2.32	2.32	2.28	2.31	2.32	2.33	2.34	2.34	2.32	2.34	2.36	2.35	2.33	2.32	2.35
20 20	Flow Ra	ite	6	0 á	42	£0 .	20	20	20	43	2	5	6	e é	44	10 x	20
Temperature	20. 2	30 I/min	o x	0	0.45	20	20	20	20	0.45	1	5 15	3. K	G ,	0.46	20	20
conditioned	Inhalation	95 I/min	. X	2	1.65		с. с.	2	8	1.57	8	- R	~ ~	- X	1.62		с. ж
20 20 -	Exhalation	160	A	в	С	D	E	A	в	С	D	E	A	в	С	D	Ē
	Exhalation	l/min	2.37	2.36	2.34	2.35	2.33	2.36	2.35	2.32	2.33	2.33	2.38	2.39	2.36	2.34	2.36

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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Table 7.9.1-A: Inward Leakage Test Data(Sample3)

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

Subject	Subject Sample No.		Walk (%)	Head Side/side (%)	Head up/down (%)	Talk (%)	Walk (%)	Mean (%)	
Lv	1	A.R	5.9	6.1	6.1	6.4	6.1	6.1	
र्रो। र्	2	A.R	6.2	6.3	5.9	6.4	5.8	6.1	
Zhong	3	A.R	5.2	5.2	5.3	5.3	5.5	5.3	
Xu	4	A.R	5.8	5.9	6.3	6.8	6.1	6.2	
Ma	5	A.R	5.3	6.4	6.0	6.8	6.4	6.2	
Chen	6	T.C	5.1	5.7	5.5	6.1	5.5	5.6	
Chen	272	T.C	5.8	5.5	5.4	5.0	5.3	5.4	
Zhuo	8	T.C	6.0	6.1	5.0	5.8	5.7	5.7	
Chen	9	T.C	T.C 6.1		6.4	5.6	5.5	5.9	
Zhang	10	T.C	6.3	5.1	6.2	6.7	5.3	5.9	

Table 7.9.1-B: Facial dimension

Subject	Face Length	Face Width	Face Depth	Mouth Width
	113	139	104	53 0
Li	120	135	112	55
Zhong	108	135	106	56
Xu	120	150	120	70
Ma	130	170	130	80
Chen	110	160		40
Chen	115	145	110	50
Zhuo	103	146	100	50
Chen	110	145	95	40
Zhang	144	141	101	54

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Table 7.9.2: Penetration of filter material(Sample3)

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

Aerosol	Condition	Sample No.	Penetration (%)	Assessment
NO NO NO S		11	0.7	N N N
	As received	12	0.4	
\$~ \$~ \$~ \$		13	0.2	
x0 x0 x0 x	0 10 10 10 10	0 14	0.10	
odium chloride test	Simulated wearing treatment	15	0.1	
1° 1° 1° 1	6 20 20 20 20 C	16	0.1	
		17	0.3	
2° 2° 2° 2° 2	Mechanical strength + Temperature conditioned	18	0.3	
XO XO XO .		19	0.3	20 <u>20 2</u>
5 6 6 6	5. 6. 6. 6.	20	0.2	Pass
10 10 10 S	As received	21	0.2	
		22	0.2	
8 6 6 6 6		23	0.4	
Paraffin oil test	Simulated wearing treatment	24	0.3	
5. 5. 5. 5. 5	, 6, 6, 6, 6,	25	0.4	
10 10 10 J	6 x x x x x	26	0.5	
	Mechanical strength + Temperature conditioned	27	0.6	
5° 5° 5° 5		28	0.6	

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Table 7.11: Flammability(Sample3)

Test specification: EN 149:2001+A1:2009 Clause 8.6

Condition	Sample No.	Result	Assessment			
	29	No burn	5 5 5 5 5			
As received	30	No burn	and and an			
	0 31 0	No burn	Pass			
Temperature conditioned	32	No burn				

Table 7.12: Carbon dioxide content of the inhalation air(Sample3)

Test specification: EN 149:2001+A1:2009 Clause 8.7

Condition	Sample No.	Re	Assessment				
to to to	33	0.04	1 2 ⁰ 2 ⁰ 2 ⁰ 2				
As received	34	0.03	Mean value:	Pass			
	35	0.04	0.04				

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Table 7.16: Breathing resistance (mbar)(Sample3)

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8 8	Flow Ra	te 🔷			36			2		37			Q.		38		
20 20	Inhalation I/n	30 I/min	5 A	0	0.31	Q.	20	20	20	0.33	5	1	5 2	9	0.34	çe ,	2Ö
As received	Innalation	95 I/min	5 ×	ci X	1.13		<. 	X.	×	1.13	×	(, ×	6 X	1.15		5
5 5	Cubalation	160	A	в	С	D	E	A	В	С	D	E	A	в	С	D	E
1º 10	Exhalation	l/min	1.79	1.80	1.79	1.80	1.76	1.80	1.81	1.79	1.80	1.80	1.77	1.76	1.79	1.81	1.83
	Flow Ra	te		G)	39			2.5	20	40				G	41	.0	
Simulated wearing treatment	Inhalation 30 95 I/min		Ś	Ŕ	0.31	2	2	2	8	0.30	Ś	Ś	Q	Ś	0.29		5
			D é	0 6	1.07	se,	20	20	20	1.08	5	1	6	0 6	1.09	1° 1	30
	Futerlation	160	A	в	CC	P	Æ	Α	в	С	D	E	А	в	C	D	E
5, 5,	Exhalation	on l/min	1.67	1.68	1.63	1.64	1.68	1.59	1.59	1.60	1.66	1.65	1.61	1.64	1.60	1.59	1.67
5 50	Flow Ra	te	2 6	0 ý	42	£° .	20	20	20	43	20	2	1 6	e de	44	< ° <	20
Temperature		30 I/min	5 1	0	0.24	20	20	20	20	0.24	10	1	5 X	G ,	0.25	,Ö	20
conditioned	Inhalation	95 I/min	. ×	R. 8	0.91		с. с.	8	8	0.90	8	8	~~~	× ~	0.91		с.
20 20 T	Exhalation	160	A	в	С	D	E	A	В	С	D	E	A	в	С	D	Ĕ
	Exhalation	l/min	1.40	1.46	1.40	1.42	1.40	1.42	1.44	1.39	1.39	1.41	1.41	1.42	1.39	1.45	1.45

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Test	Uncertainty
Total inward leakage	3.8%
Penetration of filter material(NaCl)	3.5%
Penetration of filter material(Paraffin oil)	4.2%
Carbon dioxide content of the inhalation air	4.5%
Breathing resistance(30L/min)	5.2%
Breathing resistance(95L/min)	5.4%
Breathing resistance(160)L/min)	6.0%

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Photo(s) of Sample1:





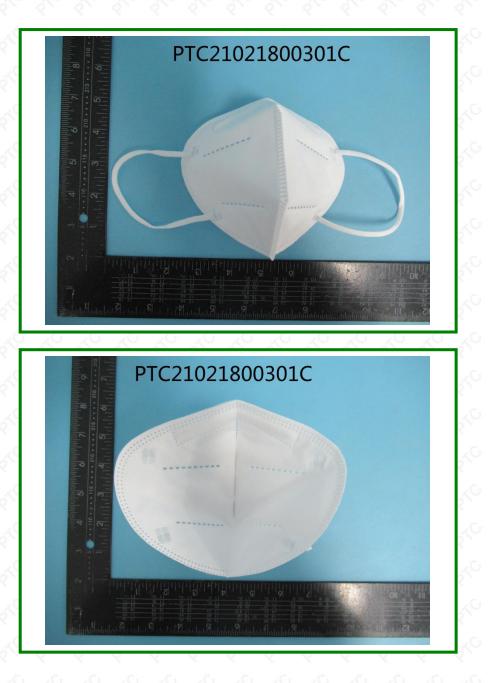
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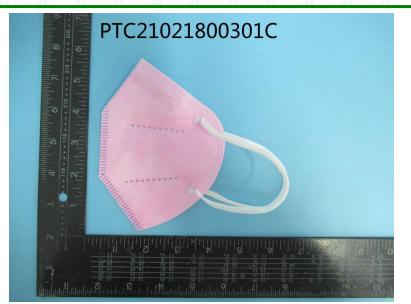


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Photo(s) of Sample2:





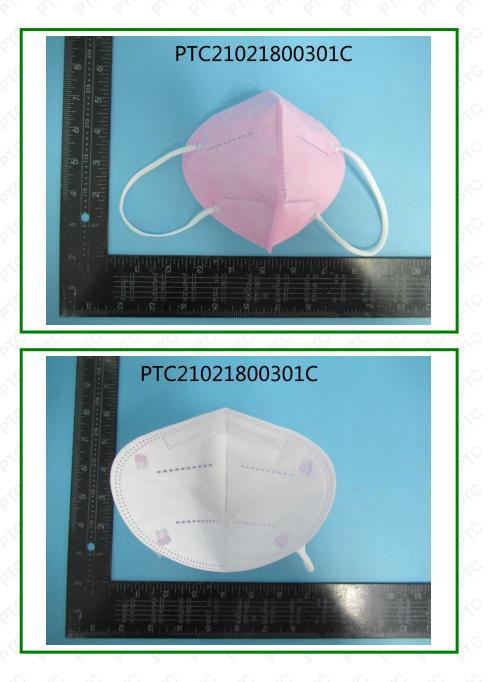
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Photo(s) of Sample3:





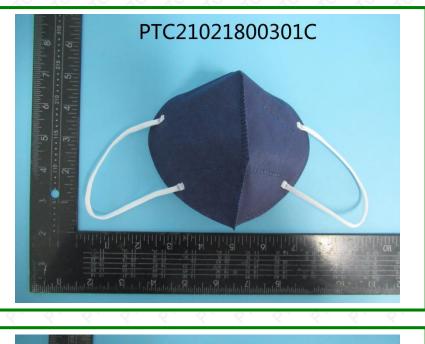
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