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TEST REPORT:

Particle Filter

EN 143: 2000+A1:2006

Respiratory protective devices — Particle filters — Requirements, testing, marking

Product: Particle filters
Report No: 2020 (F) – 0681T
Client: CCQS Certification Services Limited
Model (s): XPDF97
Date(s) of tests: 2020.12.28-2021.01.27

DESCRIPTION OF SAMPLES

General Information	Model	Main Components
	XPDF97 P3 R	White disk filter
Manufacturer	Xiamen Chengchuang Automotive Materials Co., Ltd.	
Manufacturer Address	Room 406 Office, No. 2 Xiamei Road, Xinyang Road, Xinyang Street, Haicang District, Xiamen, Fujian, China	

Signed:

Issued: 2021.05.20

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Authorized Signatory, Lab Director

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国家劳动保护用品质量监督检验中心(北京)



Test Results

Conditions:

The test results presented in this report relate to the samples tested only.

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The authenticity of this test report and its contents can be verified by contacting the laboratory.

Note. This test report is the replacement and cancellation for test report No. 2020 (F) – 0681.

The model of the product is changed from ‘XPDF97 P3 NR’ to ‘XPDF97 P3 R’.

7 Requirements

7.4 Connection

Pass¹

The connection between filter(s) and facepiece or other device(s) with which it is intended to be used shall be robust and leaktight.

The connection between filter and facepiece may be achieved by a permanent or special connector or by a screw thread including a thread conforming to EN 148-1.

Threads conforming to EN 148-2 or EN 148-3 shall not be used.

If the filter is designated to be used on a multiple filter facepiece or has any other thread, it shall not be possible to connect it to a thread conforming to EN 148-1, EN 148-2 or EN 148-3.

The filter shall be readily replaceable without use of special tools and shall be designed or marked to prevent incorrect assembly.

Note1: Special connector.

7.5 Mass

Pass²

The maximum mass of filter(s) designated to be used directly connected to a half mask is 300 g.

The maximum mass of filter(s) designated to be used directly connected to a full face mask is 500 g.

Note2: Half mask . Test results are shown in Annex A Table 7.5.

7.6 Multiple filters

Not Tested

In the information supplied by the manufacturer all necessary information on how to use multiple filters shall be given.

7.7 Material

Pass

The filter shall be made of suitable material to withstand normal usage and exposures to those temperatures, humidity and corrosive environments that are likely to be encountered. Internally it shall withstand corrosion by the filtering media.

Any material of the filter media or any gaseous products that may be released by the air flow through the filter shall not be known to constitute a hazard or nuisance for the wearer.

7.8 Packaging

N/A

Where appropriate, filters shall be factory sealed to protect the filter media against environmental influences and in such a way that the breaking of the factory sealing can be identified.

7.9 Mechanical strength (M.S.)

Pass

Filters shall be subjected to the mechanical strength test when required by the relevant clauses of this standard.

After the treatment the filters shall show no mechanical defect and shall meet the requirement of the relevant clauses.

7.10 Temperature conditioning (T.C.)

Pass

After the treatment the filters shall show no signs of damage.

7.11 Breathing resistance**Pass³**

The resistance imposed by filter(s) to the flow of air shall be as low as possible and in no case exceed the values shown in Table 1.

Table 1

Filter class	Maximum breathing resistance in mbar	
	at 30 l/min	at 95 l/min
P1	0.6	2.1
P2	0.7	2.4
P3	1.2	4.2

Note3: P3. Test results are shown in Annex A Table 7.11.

7.12 Filter penetration**Pass⁴**

The requirements for maximum filter penetration are given in Table 2.

Table2

Filter class	Maximum filter penetration of test aerosols (%)	
	Sodium chloride test at 95 l/min	Paraffin oil test at 95 l/min
P1	20	20
P2	6	6
P3	0.05	0.05

Note4: P3. Test results are shown in Annex A Table 7.12.

7.13 Clogging**Pass⁵**

The filter penetration requirements of 7.12 shall be satisfied for each test aerosol before and after the clogging test with dolomite dust.

The breathing resistance after clogging shall not exceed:

Filter class P1 4 mbar

Filter class P2 5 mbar

Filter class P3 7 mbar

Note5: Test results are shown in Annex A Table 7.13.

9 Marking**Not Tested**

- 1) All the markings shall be readable and durable.
- 2) Sub-assemblies and piece parts with considerable bearing on safety shall be marked so that they can be identified.
- 3) Encapsulated filters

All filters where the filtering material is contained within a casing shall be marked at least with:

- a) appropriate filter type and class (P1, P2 or P3), and white colour code followed by:
 - b) "NR" if the filter is limited to single shift use only; or
 - c) "R" if the filter is re-usable respectively;
 - d) a mark showing if the filter is for a multiple filter device;
 - e) the number and year of publication of this European Standard;
 - f) at least the year of end of shelf life. The end of shelf life may be informed by a pictogram as shown in Figure 14 where the code "yyyy/mm" indicates the year and month;
 - g) the manufacturer's name(s), trade mark(s) or other means of identification;
 - h) the sentence "See information supplied by the manufacturer" at least in the official language(s) of the country of destination, or the appropriate pictogram as shown in Figure 14;
 - i) type-identifying mark.

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4) Unencapsulated filters

Filters comprising entirely of filtering material (without casing) shall be marked at least with:

- a) the appropriate filter type and class (P1, P2 or P3), and white colour code followed by:
- b) “NR” if the filter is limited to single shift use only; or
- c) “R” if the filter is re-usable respectively;
- d) type-identifying mark.

5) Filter package

The smallest commercially available filter package shall be marked at least with the following information, unless it is already on the filter:

- a) the appropriate filter type and class (P1, P2 or P3), and white colour code followed by:
- b) “NR” if the filter is limited to single shift use only; or
- c) “R” if the filter is re-usable respectively;
- d) the number and year of publication of this European Standard;
- e) at least the year of end of shelf life or equivalent pictogram as shown in Figure 14, if applicable;
- f) the manufacturer’s name(s), trade mark(s) or other means of identification;
- g) the sentence “See information supplied by the manufacturer” at least in the official language(s) of the country of destination, or the appropriate pictogram as shown in Figure 14;
- h) type-identifying mark;
- i) the manufacturer’s recommended conditions of storage (at least the temperature and humidity) or equivalent pictogram as shown in Figure 14;
- j) multiple filter mark, if applicable;

The information specified in c), f) and g) shall be visible without opening the package.

End of Test Results

Annex A: Summarization of Test Data**Table 7.5 Mass**

Sample No.	Mass /g	Sample No.	Mass/g
1+11	17	/	/
2+12	17	/	/
3+13	17	/	/
4+14	17	/	/
5+15	18	/	/
6+16	17	/	/
7+17	17	/	/
8+18	17	/	/
9+19	17	/	/
10+20	17	/	/

Table 7.11 Breathing resistance

Test specification: EN 143: 2000+A1:2006 Clause 8.6

Condition	Sample No.	Breathing Resistance (mbar)	
		15l/min Twin filter	47.5l/min Twin filter
M.S.	1	0.7	2.3
	2	0.8	2.4
M.S.+T.C.	7	0.7	2.4
	8	0.8	2.4

Table 7.12 Filter penetration

Test specification: EN 143: 2000+A1:2006 Clause 8.7

Test Specification EN 1437:2006 + A1:2006 Grade 017				
Sample No.		Penetration (%)		Penetration after storage (%) Re-usable filters only
Sodium chloride test				
M.S.+T.C.	/	/	Not tested as NaCl test was terminated before full 120 mg exposure.	/
	/	/		/
	/	/		/
Paraffin oil test				
M.S..	3	/	0.042	
	4	/	0.046	
	5	/	0.047	
Temperature: / °C Relative humidity: / %			Storage conditions Temperature: 20 °C Relative humidity: 43 % Duration: 24 h	

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Table 7.13-A Clogging test- Breathing resistance
Test specification: EN 143: 2000+A1:2006 Clause 8.6&8.8

Condition	Sample No.	15l/min Twin filter	47.5l/min Twin filter
M.S.	3	/	3.1
	4	/	3.3
M.S.+T.C.	15	/	3.2
	16	/	3.3

Table 7.13-B Clogging test- Filter penetration
Test specification: EN 143: 2000+A1:2006 Clause 8.7&8.8

Sample No.		Penetration(%)
Sodium chloride test		
M.S.	3	0.016
	4	0.007
M.S. + T.C.	15	0.012
	16	0.017
Paraffin oil test		
M.S.	5	0.043
	6	0.040
M.S. + T.C.	17	0.040
	18	0.033
Temperature: 24 °C		
Relative humidity: 33 %		

End of Annex A

Annex B: Estimates of the uncertainty of measurement

Clause	Test	Uncertainty
7.5	Mass	0.3%
7.11	Breathing resistance	1.8%
7.12	Filter penetration	1.1%

End of Annex B

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ANNEX B PHOTOS OF SAMPLES



End of Annex C