



TEST REPORT

39-11038/1

Product: Nanofilter

Type designation Respilon Air[®] 2

Customer: Respilon Group s.r.o.
Cejl 12
602 00 Brno
Company ID No.: 29245770

Manufacturer: Respilon Group s.r.o.
Cejl 12
602 00 Brno
Company ID No.: 29245770

Responsible employee: Ing. Stanislav Buchta

Report date issue: 2016-12-02

Distribution list: 1 copy to the Engineering Test Institute
1 copy to the Customer



The tests were conducted on basis:
- Order B-57791 of 2016-11-15

I. Product description

Pieces of membranes, dimensions 15 cm x 15 cm.

II. Tested sample

Visual inspection, testing and assessment were conducted at the test station of the Engineering Test Institute in Brno by Ing. Milan Šmarda.

III. Test results

Measuring and testing equipment:

No.	Name	Inventory number	Accuracy
1.	Anemometer	02-2162	Calibration Sheet ANM11032
2.	Pressure sensor	11-5990	Calibration Sheet 130098-9
3.	Dust counter	02-2182	Calibration Sheet 125045-Z0089-12

Test method:

Measurement of efficiency of membranes was made with constant airflow 1.2 l/min. Air contained the particles which were made by burning cigarette tobacco.

Measurement of efficiency was made by alternating measuring on the input and output sides of filter. Sampling time was 5x1 minute on input and output sides. From every five minutes, summarization and graphical representation of measuring was made.

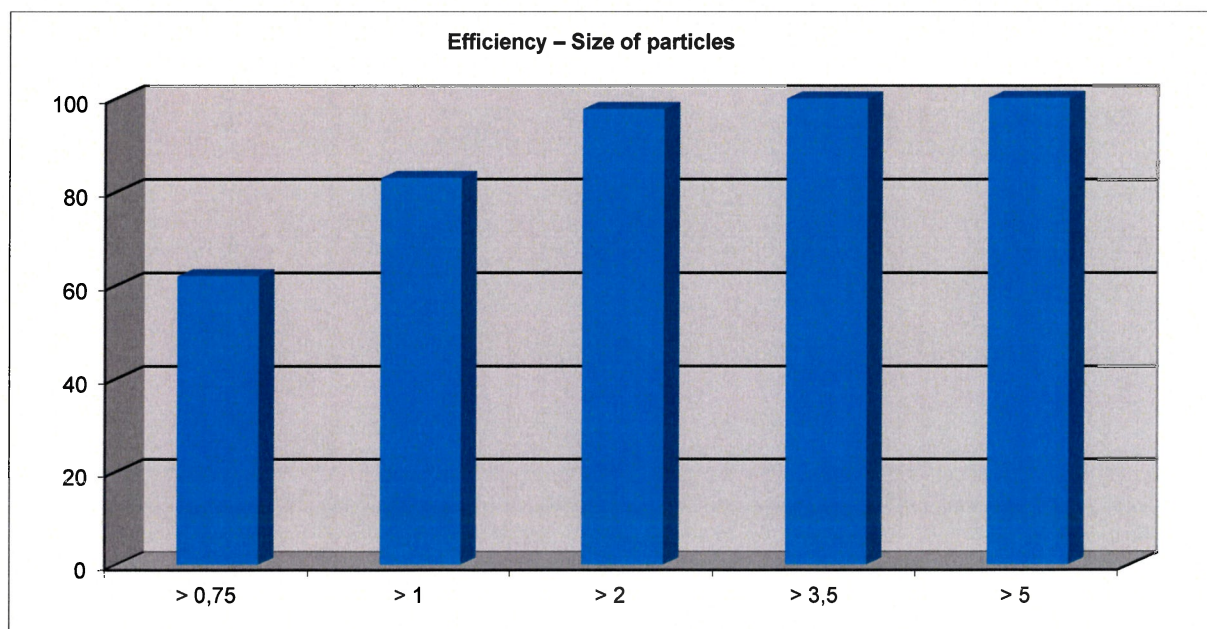


A) Measurement of efficiency – Respilon Air® 2 Filter

Measurement number	Input concentration							
	> 0.75 µm	> 1 µm	> 2 µm	> 3.5 µm	> 5 µm	> 7.5 µm	> 10 µm	> 15 µm
1	2 330 010	2 291 014	2 157 345	1 788 229	708 530	35 167	0	0
2	2 305 092	2 259 869	2 001 429	1 308 861	214 222	1 354	0	0
3	2 260 433	2 179 893	1 800 809	855 367	67 724	181	0	0
4	2 285 818	2 164 090	1 654 943	552 905	19 631	17	0	0
5	2 217 569	1 896 796	1 047 562	172 227	3 075	0	0	0

Measurement number	Output concentration							
	> 0.75 µm	> 1 µm	> 2 µm	> 3.5 µm	> 5 µm	> 7.5 µm	> 10 µm	> 15 µm
1	911 687	402 454	47 396	776	1	0	0	0
2	922 899	405 504	47 191	721	0	0	0	0
3	897 699	385 719	42 104	576	0	0	0	0
4	840 883	347 834	35 184	533	0	0	0	0
5	768 243	305 921	28 860	413	0	0	0	0

Efficiency (%)								
η1	60.9	82.4	97.8	100.0	100.0	100.0	-	-
η2	60.0	82.1	97.6	99.9	100.0	100.0	-	-
η3	60.3	82.3	97.7	99.9	100.0	100.0	-	-
η4	63.2	83.9	97.9	99.9	100.0	100.0	-	-
η5	65.4	83.9	97.2	99.8	100.0	-	-	-
Average	61.9	82.9	97.6	99.9	100.0	-	-	-



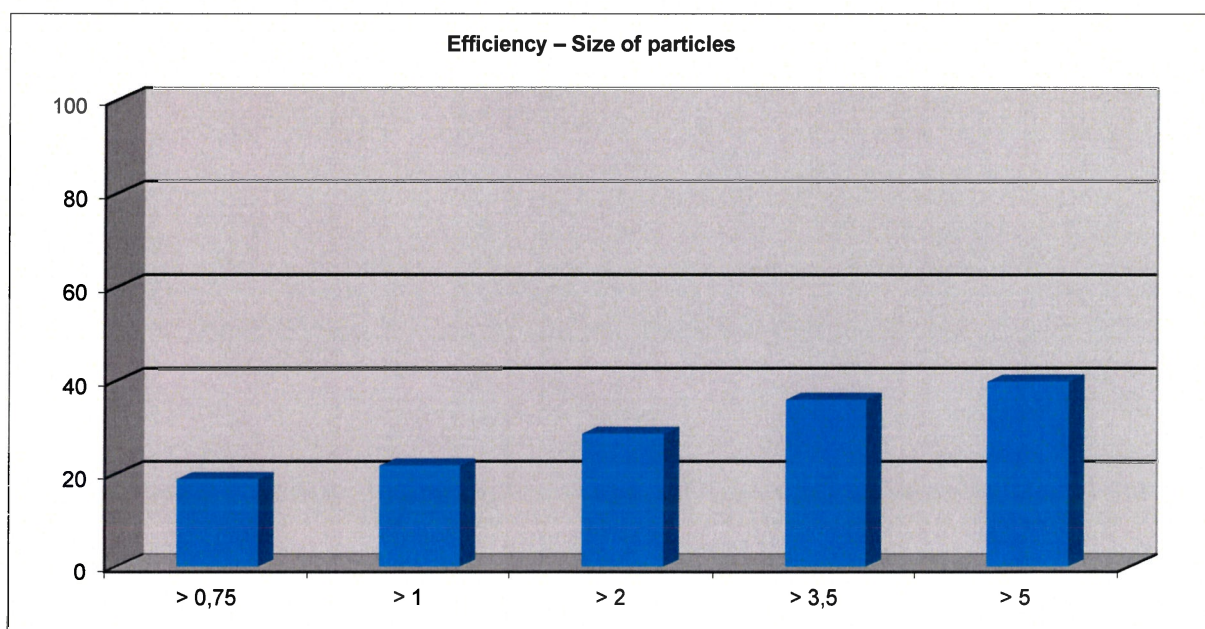


B) Measurement of efficiency – Competitor's anti-pollen screen

Measurement number	Input concentration							
	> 0.75 μm	> 1 μm	> 2 μm	> 3.5 μm	> 5 μm	> 7.5 μm	> 10 μm	> 15 μm
1	6874	3234	938	140	17	0	0	0
2	6488	3009	871	129	10	0	0	0
3	6815	3161	925	136	11	1	0	0
4	6424	2979	850	113	7	0	0	0
5	5669	2505	689	89	4	0	0	0

Measurement number	Output concentration							
	> 0.75 μm	> 1 μm	> 2 μm	> 3.5 μm	> 5 μm	> 7.5 μm	> 10 μm	> 15 μm
1	5271	2368	602	69	8	0	0	0
2	5384	2393	644	73	4	1	0	0
3	5115	2263	579	84	9	1	0	0
4	5304	2394	665	94	4	0	0	0
5	5024	2170	539	62	3	0	0	0

Efficiency (%)								
η_1	23.3	26.8	35.8	50.7	52.9	-	-	-
η_2	17.0	20.5	26.1	43.4	60.0	-	-	-
η_3	24.9	28.4	37.4	38.2	18.2	-	-	-
η_4	17.4	19.6	21.8	16.8	42.9	-	-	-
η_5	11.4	13.4	21.8	30.3	25.0	-	-	-
Average	18.8	21.7	28.6	35.9	39.8	-	-	-



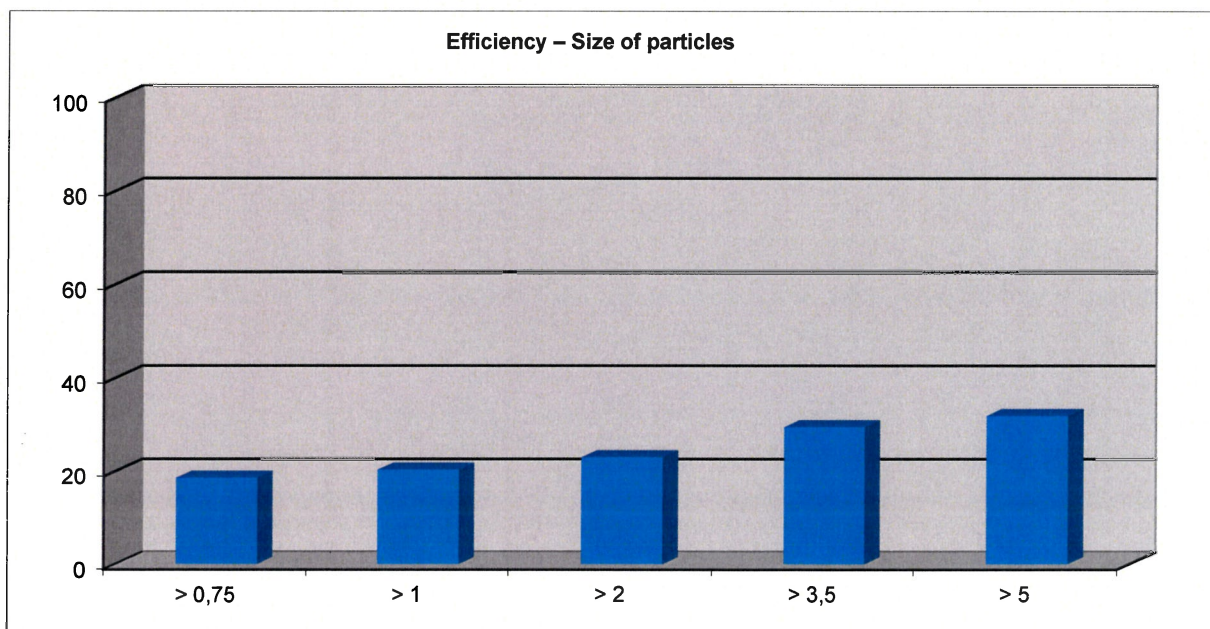


C) Measurement of efficiency – Leading competitor’s anti-pollen screen

Measurement number	Input concentration							
	> 0.75 μm	> 1 μm	> 2 μm	> 3.5 μm	> 5 μm	> 7.5 μm	> 10 μm	> 15 μm
1	10447	5203	1648	274	28	3	0	0
2	10635	5178	1588	247	28	0	0	0
3	10173	4972	1599	251	23	0	0	0
4	10098	4906	1502	231	30	2	0	0
5	10327	4928	1517	259	24	0	0	0

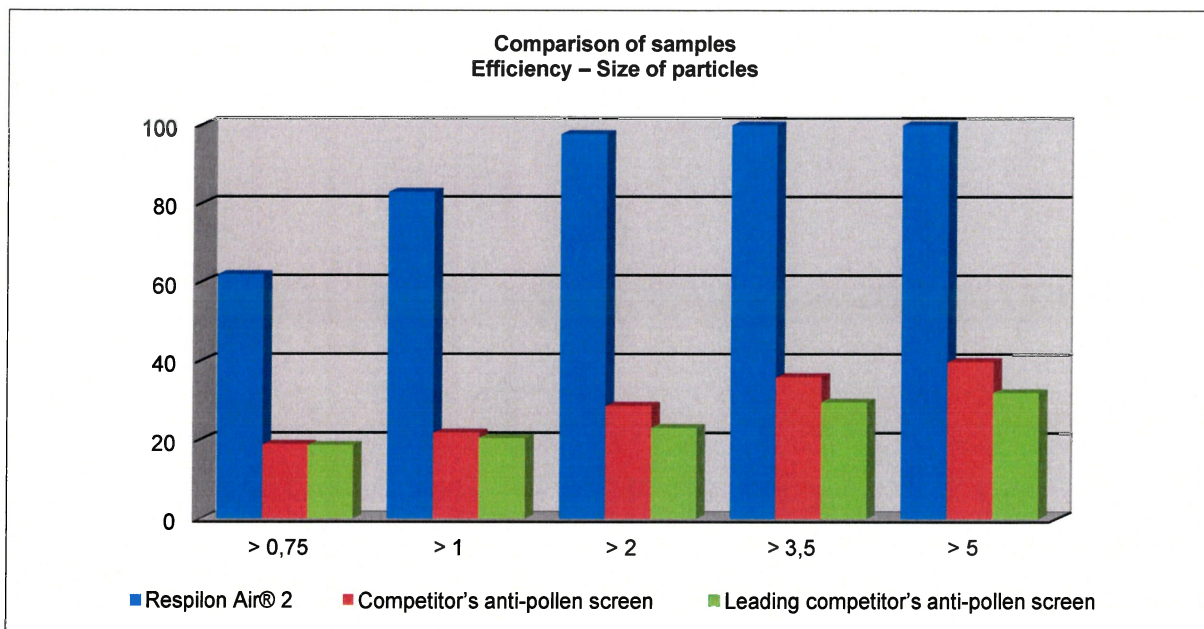
Measurement number	Output concentration							
	> 0.75 μm	> 1 μm	> 2 μm	> 3.5 μm	> 5 μm	> 7.5 μm	> 10 μm	> 15 μm
1	8584	4094	1244	186	15	1	0	0
2	8727	4233	1247	188	22	1	0	0
3	8294	3922	1183	170	23	3	0	0
4	8467	4020	1214	179	15	2	0	0
5	8009	3797	1156	164	14	3	0	0

Efficiency (%)								
η_1	17.8	21.3	24.5	32.1	46.4	66.7	-	-
η_2	17.9	18.3	21.5	23.9	21.4	-	-	-
η_3	18.5	21.1	26.0	32.3	0.0	-	-	-
η_4	16.2	18.1	19.2	22.5	50.0	-	-	-
η_5	22.4	23.0	23.8	36.7	41.7	-	-	-
Average	18.6	20.3	23.0	29.5	31.9	-	-	-





Due to clogging of the suction nozzle with asphalt, the ambient air was used for testing of the efficiency measurement of the competitors' membranes. The same method was applied.



Tested by: Ing. Milan Šmarda

Date: 2016-12-05

Signed: 

Reviewed by: Milan Holomek

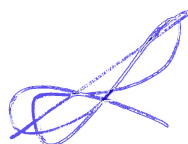
Date: 2016-12-05

Signed: 

IV. List of referenced documents

- Order B-57791 of 2016-11-15

Person responsible for the Report



Milan Holomek
Head of Heat and Environment-Friendly Equipment Test Station

