Determination of the filtration performance of tissue element

CODE ANTIPO 180-30

Requested by: T.I.E. Tessitura Industriale Europea S.P.A.

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Requested by:	T.I.E. Tessitura Industriale Europea S.P.A.
Address:	Località Petrona 18 50038 Scarperia e San Pietro (FI) - Italy
Sample(s):	Delivered sample, No. 1 piece

Purpose of the test
Measurement of the aeraulic characteristics and performance of a tissue element for different particle size.

Sample Supplied
The sample tissue is identified with the code **ANTIPO 180-30**. The frame containing the tissue element have a dimension of 595mm (width) x 595mm (height) x 10mm (depth).

Laboratory's remarks
The customer delivered one tissue element. Sample arrived in good condition with no obvious damage.

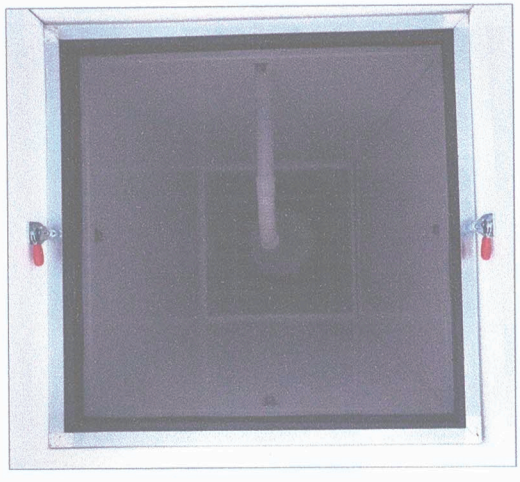
Test Method
The test sample consist of one tissue element mounted in the test duct inside a metal plate with dimension 610mm (width) x 610mm (height) x 75mm (thickness).
The air flow resistance, as a function of the air flow rate, was measured at **200 m³/h**.
The spectral efficiency of the filter was measured with optical particle counters (OPC) for the following particle sizes: **0.5 / 1.0 / 2.0 / 5.0 / 10.0 / 25.0 µm.** This test was performed at the air flow rate of **200 m³/h**;

The test aerosol used to determine the spectral efficiency was **KCl** *(Potassium chloride).*

The test was performed in date:
12.12.2019
Resistance to Airflow

12.12.2019
Fractional Efficiency by Particle Size

Results of the test:
See annexes: 1



Laboratory Tester
Davide Degiorgi

Laboratory Manager
Luca Zucchelli

Dep. CTS Laboratory
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Date of test:	**12 Dec 2019**				
Temperature:	19.3 °C	Relative humidity:	46.2 %	Atm. Pressure:	98,698 kPa

TEST DATA DETAILS			
Type of test:	**Fractional Efficiency by Particle Size**		
Air Filter:	ANTIPO 180-30	Article number:	---
Dimension WxHxD (mm):	595x595x10	Filter state:	**Untreated**
Filter material:	---	Airflow rate (m^3/h):	200
Test aerosol:	KCl 20%	Pressure drop (Pa):	0
Cycles No:	6	Sampling time:	30 s

TEST RESULTS

Particle Size		Efficiency Measurement by Particle Size			
Interval (µm)	Interval (nm)	Concentration (N/cf)		Efficiency (%)	Uncertainty U
		Upstream	Downstream		
0.5	500	15296685	15141416	1.01	± 0,139
1.0	1000	13907428	13699815	1.50	± 0,332
2.0	2000	13830000	13492885	2.44	± 0,124
5.0	5000	4393983	3512893	20.05	± 0,596
10.0	10000	5768	3851	32.71	± 1,812
25.0	25000	670	287	56.99	± 0,513

The uncertainty of the measured efficiencies is reported on a 95% confidence limit.

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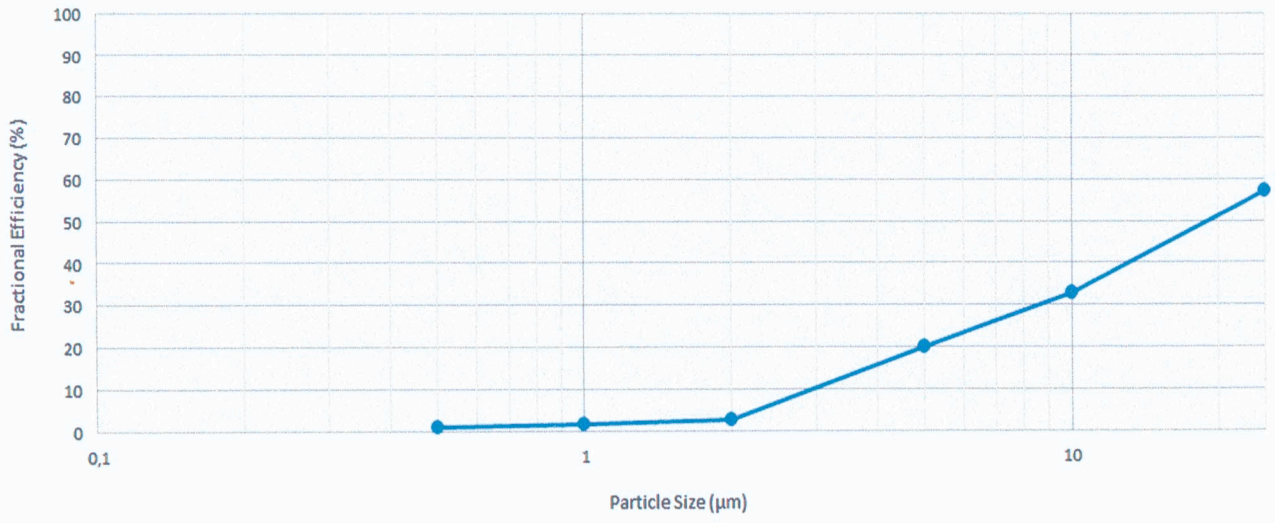
TEST RESULTS



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The report applies to the tested device only. The performance results cannot by themselves be quantitatively applied to predict filtration performance in all real life environments. This report must not be reproduced without the written approval of the CTS Laboratory.

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INSTRUMENT USED				
Instrument	**Type Code**	**Serial Number**	**Calibration Date**	**Used**
Optical particle counter	Lasair-210	22210-1090-40	07 Apr, 2014	---
	Lasair III 5100	65360	16 Mar, 2018	✓
	Lasair III 110	125399	06 Dec, 2017	---
Differential pressure gage	Dwyer Magnehelic	W51WRD	05 Jan, 2017	---
	KIMO AMI 300	12032877	16 Mar, 2018	✓
Hygrometer	KIMO AMI 300	12017154	16 Mar, 2018	✓
Temperature meter	KIMO AMI 300	12017154	16 Mar, 2018	✓
Air flow meter	KIMO DBM 610	12030245	16 Mar, 2018	✓
	TSI 8380	T83801319007	08 May, 2014	---
Dilution system	VKL-10 Palas	5982	03 Dec, 2014	---
	VKL-100s Palas	3772	04 Jul, 2014	---
Photometer	ATI-2i	24299	21 Aug, 2018	---
Aerosol generator	AGK 2000 Palas	8220	29 Mar, 2017	✓
Aerosol generator	AGP 2.0ip Palas	0988	* n.p.	---

** not provided*