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Supplementary Materials

Sustainable Surgical Masks: Optimizing Fine/Ultrafine Particle Filtration Using PVA/Chitosan Electrospun Nanofibers

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Table S1: Regression equation models obtained by the Central Composite Desing, analyzed with the Response Surface Methodology, for the responses of Collection (η), Permeability Constant (K1), and Quality Factor (Q_F).

Response		Model	p-value	Equation
η (%)	=	-275 + 29.44 Field (kV) - 93.6 Flow Rate (mL/h) + 2.11 Time (min)		
		- 0.602 Field (kV)*Field (kV) - 26.9 Flow Rate (mL/h)*Flow Rate (mL/h)	0.000	(S1)
		- 0.01300 Time (min)*Time (min) + 3.88 Field (kV)*Flow Rate (mL/h)		
		- 0.0697 Field (kV)*Time (min) + 1.131 Flow Rate (mL/h)*Time (min)		
K1 (µm²)	=	141 - 6.8 Field (kV) + 98.1 Flow Rate (mL/h) - 2.20 Time (min)		
		+ 0.117 Field (kV)*Field (kV) + 76.9 Flow Rate (mL/h)*Flow Rate (mL/h)	0.000	(S2)
		+ 0.01924 Time (min)*Time (min) - 6.06 Field (kV)*Flow Rate (mL/h)		
		+ 0.0680 Field (kV)*Time (min) - 1.901 Flow Rate (mL/h)*Time (min)		
Q _F	=	0.044 - 0.00568 Field (kV) + 0.1029 Flow Rate (mL/h) + 0.00125 Time (min)		
		+ 0.000140 Field (kV)*Field (kV) - 0.0180 Flow Rate (mL/h)*Flow Rate (mL/h)	0.002	(S3)
		- 0.000001 Time (min)*Time (min) - 0.00138 Field (kV)*Flow Rate (mL/h)		
		- 0.000034 Field (kV)*Time (min) - 0.000921 Flow Rate (mL/h)*Time (min)		



Figure S1: Pressure drop per surface velocity for all the samples of both replicates in the CCD model (A and B).

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Figure S2: Fractional efficiency curve for all samples of both replicates in the CCD model (A and B).



Figure S3: Contour plots for the Permeability Constant (K1) response, taking into consideration the interaction of the parameters: (a) electric field \times flow rate; (b) electric field \times time; and (c) flow rate \times time. (d), (e), and (f) show the surface plot for the same parameter combinations, respectively.



Figure S4: Contour plots for Quality Factor (Q_F) response, taking into consideration the interaction of the parameters: (a) electric field × flow rate; (b) electric field × time; and (c) flow rate × time. (d), (e) and (f) show the surface plot for the same parameter combinations.



Figure S5: Desirability evaluation, holding the same importance parameters for each response in 1.



Figure S6: Desirability evaluation, holding the same importance parameters for Quality Factor (Q_F) and Collection Efficiency (η) at the maximum value (10), and decreasing the importance of the Permeability Constant (K1) to the minimum value (0.1).



Figure S7: Desirability evaluation, holding the same importance parameters for Quality Factor (Q_F) and Permeability Constant (K1) at the maximum value (10), and decreasing the importance of the Collection Efficiency (η) to the minimum value (0.1).



Figure S8: Desirability evaluation, holding the same importance parameters for Collection Efficiency (η) and Permeability Constant (K1) at the maximum value (10) and decreasing the importance of the Quality Factor (Q_F) to the minimum value (0.1).