Facile functionalization via plasma enhanced chemical vapor deposition for effective filtration of oily aerosol

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Table S1. Reference values of surface energy components of liquids

Liquid	$\boldsymbol{\gamma_L}$ (mN/m)	$\boldsymbol{\gamma_L^d}$ (mN/m)	$\boldsymbol{\gamma_L^p}$ (mN/m)	P_L (Polar Ratio)
Water (WA)	72.8	21.8	51.0	0.70
Methylene iodide (MI)	50.8	50.4	0.40	0.008

Note: $\boldsymbol{\gamma_L}$, overall surface energy of liquid; $\boldsymbol{\gamma_L^d}$, dispersive component surface energy of liquid; $\boldsymbol{\gamma_L^p}$, polar component surface energy of liquid; P_L, ratio of the polar component to the overall surface energy of liquid.

$$\gamma_{SL} = \gamma_S + \gamma_L - 2\sqrt{\gamma_S^d \cdot \gamma_L^d} - 2\sqrt{\gamma_S^p \cdot \gamma_L^p} \quad \text{(Eq. S1)}$$

$$\gamma_S = \gamma_{SL} + \gamma_L \cos\theta \quad \text{(Eq. S2)}$$

$$\gamma_L(1 + cos\theta) = 2\sqrt{\gamma_S^d \cdot \gamma_L^d} - 2\sqrt{\gamma_S^p \cdot \gamma_L^p} \quad \text{(Eq. S3)}$$

$$\gamma_S = \gamma_S^d + \gamma_S^p \quad \text{(Eq. S4)}$$

θ: contact angle of liquid on solid surface

$\boldsymbol{\gamma_{SL}}$: interfacial energy between solid and liquid

$\boldsymbol{\gamma_S}$: surface energy of solid

$\boldsymbol{\gamma_S^d}$: dispersive component surface energy of solid

$\boldsymbol{\gamma_S^p}$: polar component surface energy of solid

$\boldsymbol{\gamma_L}$: surface energy of liquid

$\boldsymbol{\gamma_L^d}$: dispersive component surface energy of liquid

$\boldsymbol{\gamma_L^p}$: polar component surface energy of liquid

Table S2. Solidity and porosity of different webs

Web	Solidity	Porosity (%)
PP SB	0.11	89
PP MB	0.10	90
PS ES	0.11	89
PS_f ES	0.10	90
PS_{O2} ES	0.10	90

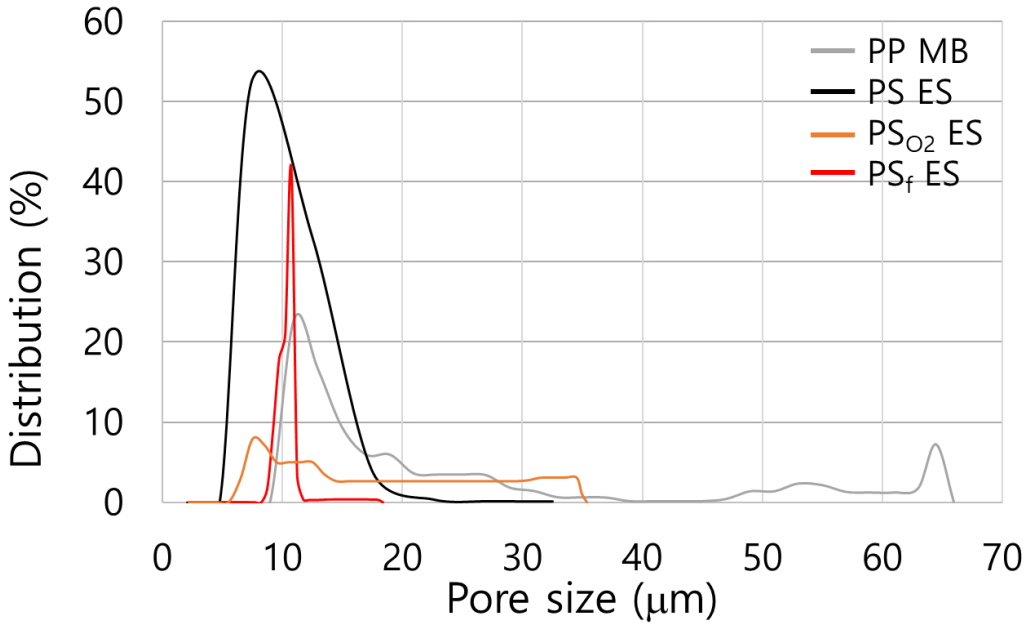

Figure S1. Pore size distribution of webs.

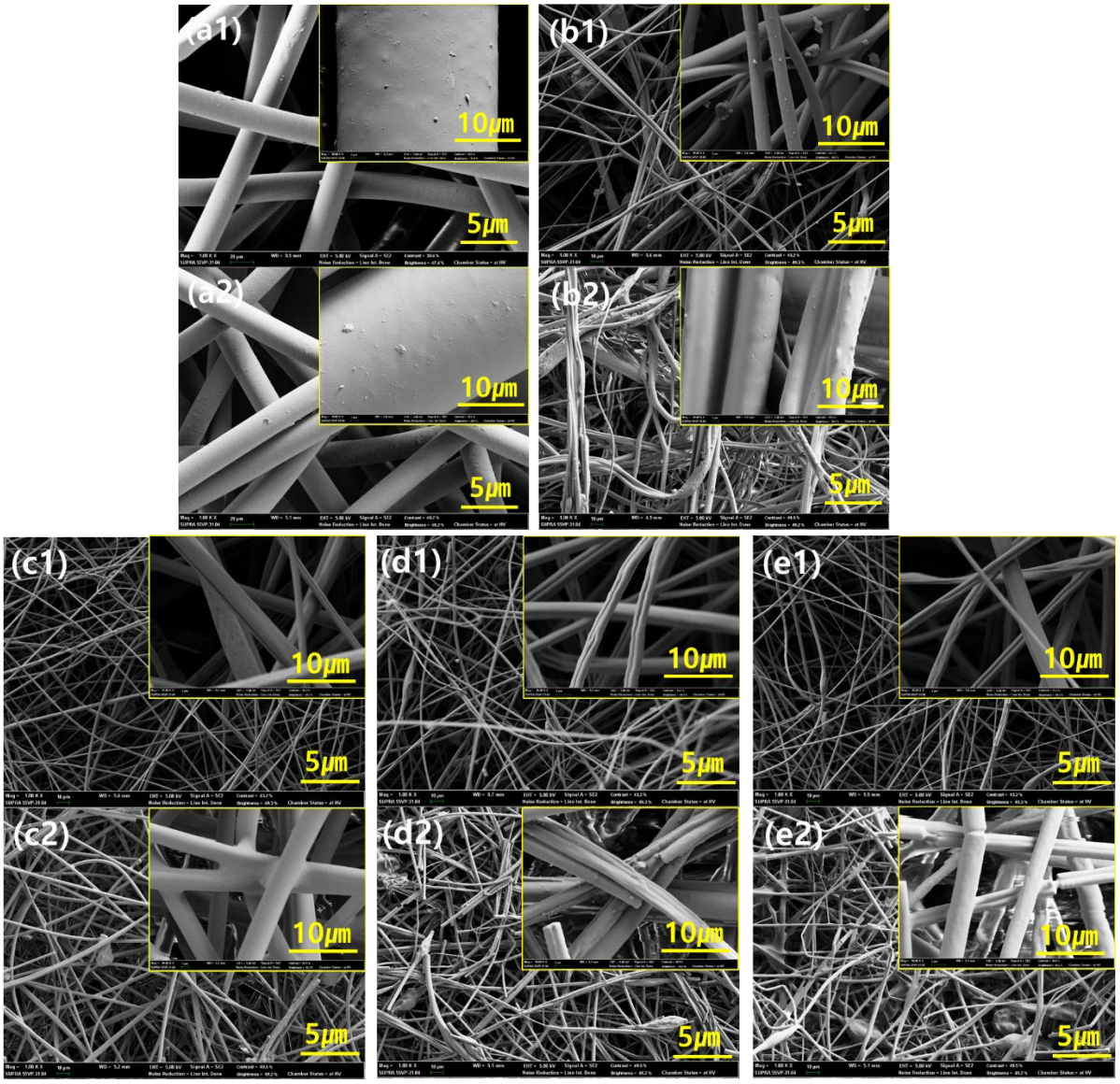

Figure S2. SEM images of different webs before and after 40 mg of DOP loading. (a1) PP SB; (a2) PP SB with DOP; (b1) PP MB; (b2) PP MB with DOP; (c1) PS ES; (c2) PS ES with DOP; (d1) PS_{O2} ES; (d2) PS_{O2} ES with DOP; (e1) PS_f ES (e2) PS_f ES with DOP.

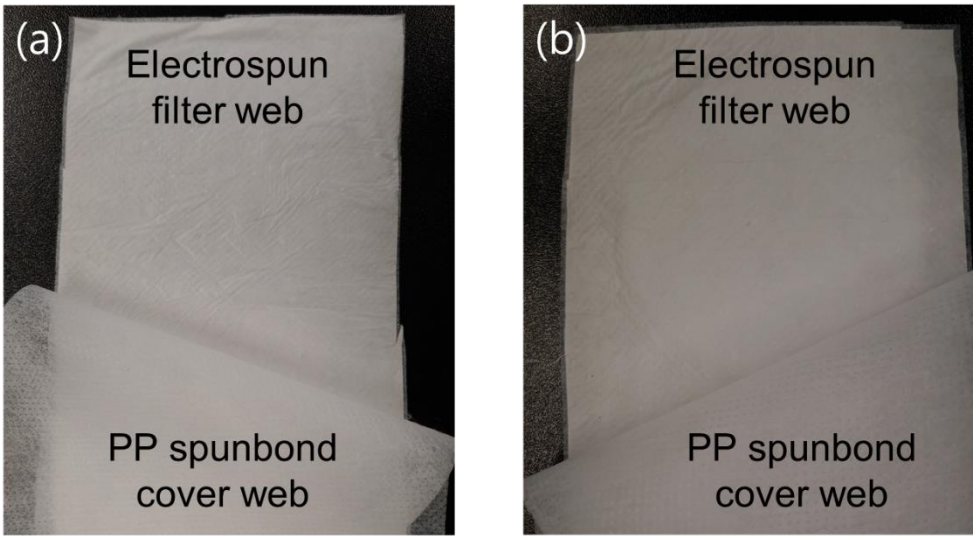

Figure S3. Electrospun filter web images before (a) and after (b) NaCl particle loading.