

## Supplementary information

### Modification of fibrous membrane for organic and pathogenic contaminants removal: From design to application

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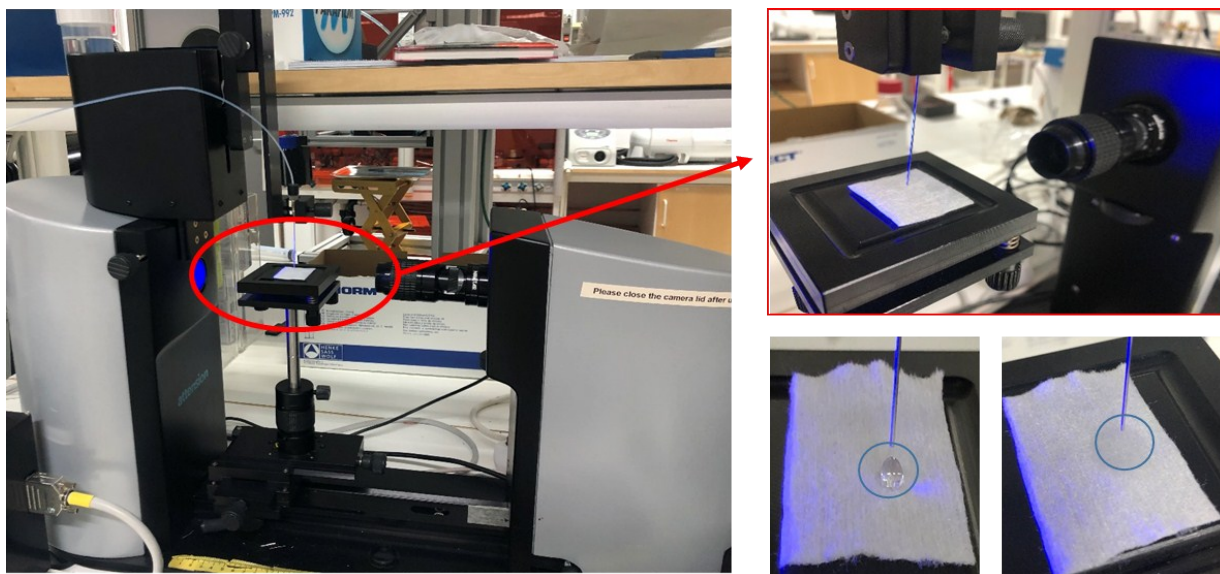
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#### 1. Experimental

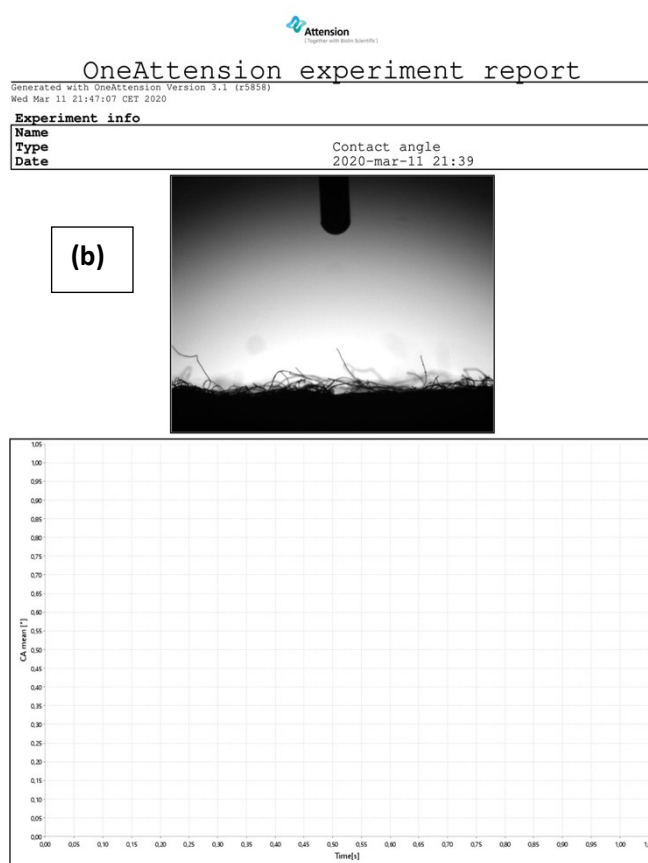
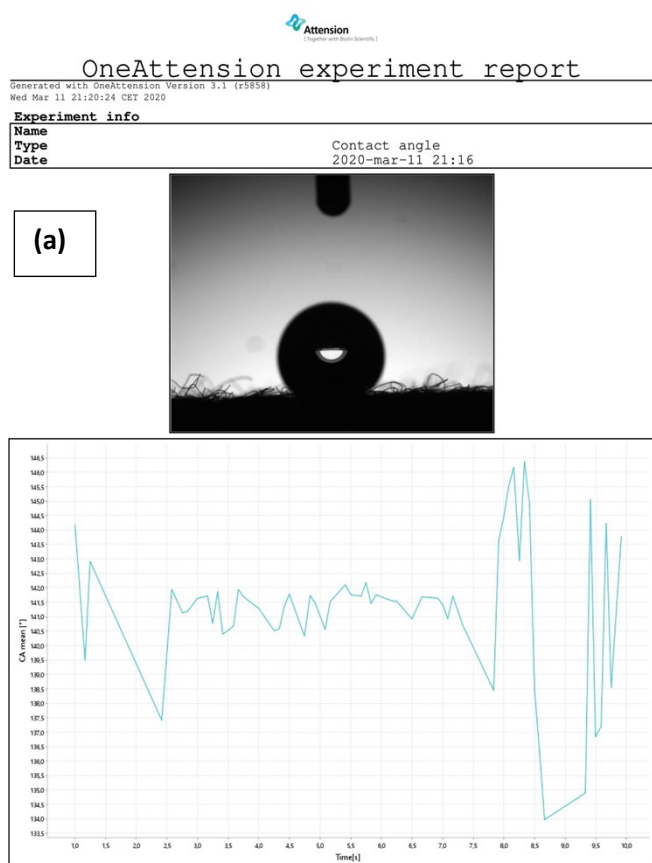
##### 1.1. Contact angle measurement

The contact angle of nonwoven before and after functionalization was carried out using Attension Theta Optical Tensiometer from Biolin Scientific (see figure S1). The device is equipped with two distinct units, (1) A light source and electronic interface unit and (2) A camera and camera installation unit. Between this two-unit sample, the stage has been placed.

Typically, the sample was placed on the sample stage. The height of the stage has been adjusted with the camera and the mounting syringe contain distilled water. 5 $\mu$  of size if water droplet will be dropped on the surface of the sample and record the data for 10 sec. Automatic data collection panel of Theta Optical Tensiometer will record and allow the analysis (see Figure S4) of drop by using OneAttension software as per the Young-Laplace equation [40]. The software can fit the Young-Laplace equation to the shape of the drop accurately considering all of the points on the drop profile over a period of time (10 sec). All the experiments were triplicated and mean contact angle has been considered.



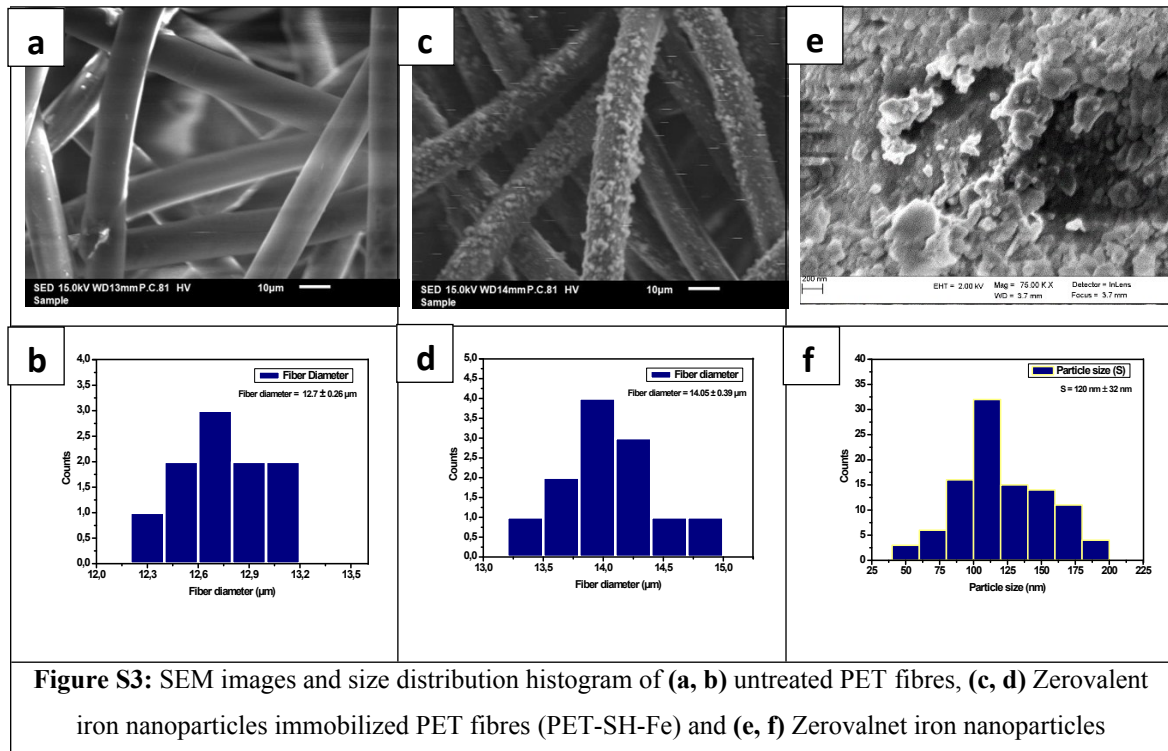
**Figure S1:** Attension Theta Optical Tensiometer (Biolin Scientific).



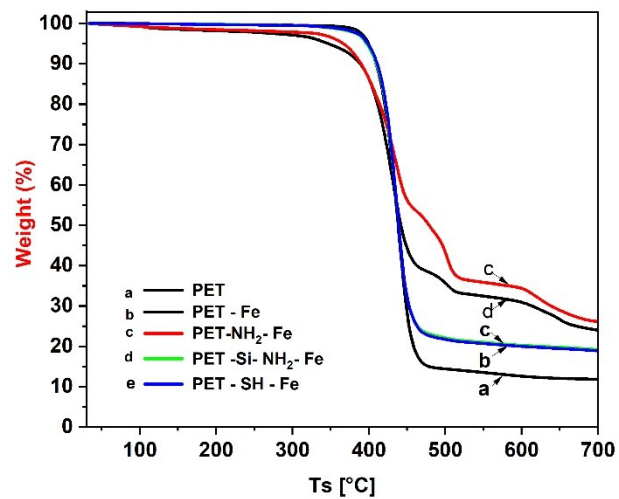
**Figure S2:** Contact angel measurement of (a) untreated and (b) plasma treated polyester nonwoven membrane (Test report)

## 2. Results

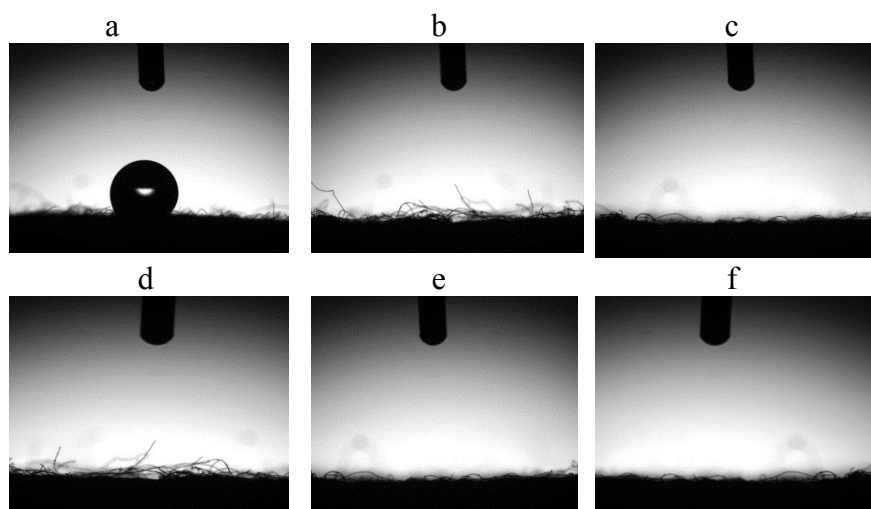
### 2.1. SEM images



### 2.2. Thermogravimetric analysis



### 2.3. Wettability analysis



**Figure S5:** Contact angle of the deposited drop into (a) PET, (b) plasma-treated PET, (c) PET-Fe, (d) PET- PET-Si-NH<sub>2</sub>-Fe, (e) PET-NH<sub>2</sub> -Fe and (f) PET-SH-Fe membranes.