

# Supplementary Materials

## A Novel Strategy for Creating an Antibacterial Surface Using a Highly Efficient Electrospray-Based Method for Silica Deposition

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### This PDF file includes:

Supplementary Information Text  
Supplementary Figure S1  
Supplementary Figure S2  
Supplementary Figure S3

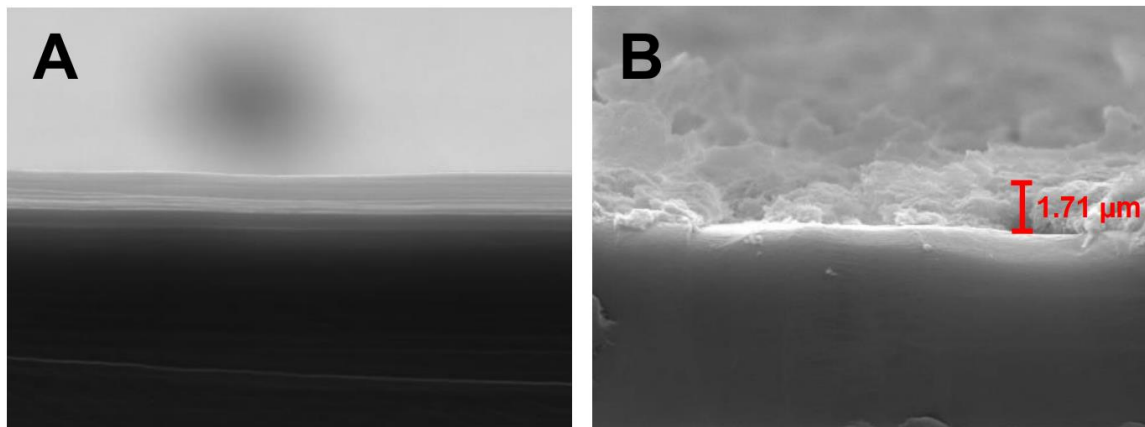
### Other Supplementary Materials for this manuscript include the following:

Video S1  
Video S2

## Supplementary Information Text

### S1. Analysis of SiO<sub>2</sub>-Deposited Layer Thickness on PET Substrate

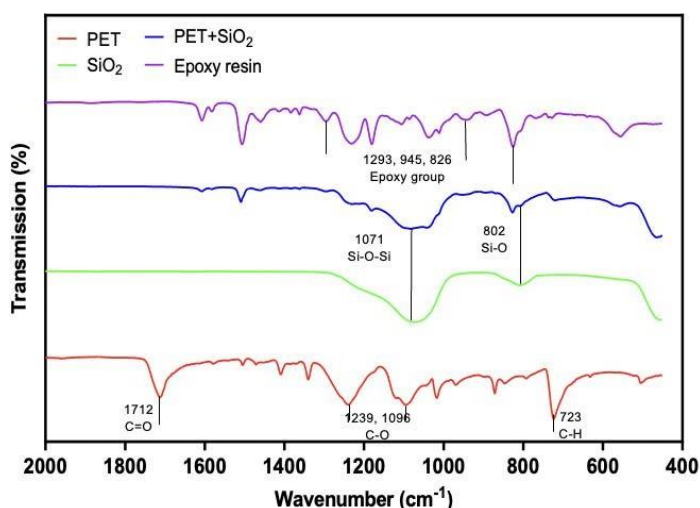
We performed cross-sectional SEM images to assess the thickness of SiO<sub>2</sub>-deposited layer on PET substrate. Samples were prepared by cutting the substrates using surgical blade and the surfaces of fractures were coated with Pt prior to the SEM analysis (Tescan SEM, Tescan Ltd., Brno, Czech Republic). Figure S1 showed that deposition of SiO<sub>2</sub> onto PET increased the substrate thickness to 1.71  $\mu\text{m}$ .



**Figure S1.** Cross-sectional SEM images of SiO<sub>2</sub>-deposited layer. (A) A cross-sectional SEM image of plain PET film. (B) A cross-sectional SEM image of SiO<sub>2</sub>-deposited PET film.

### S2. FTIR Analysis

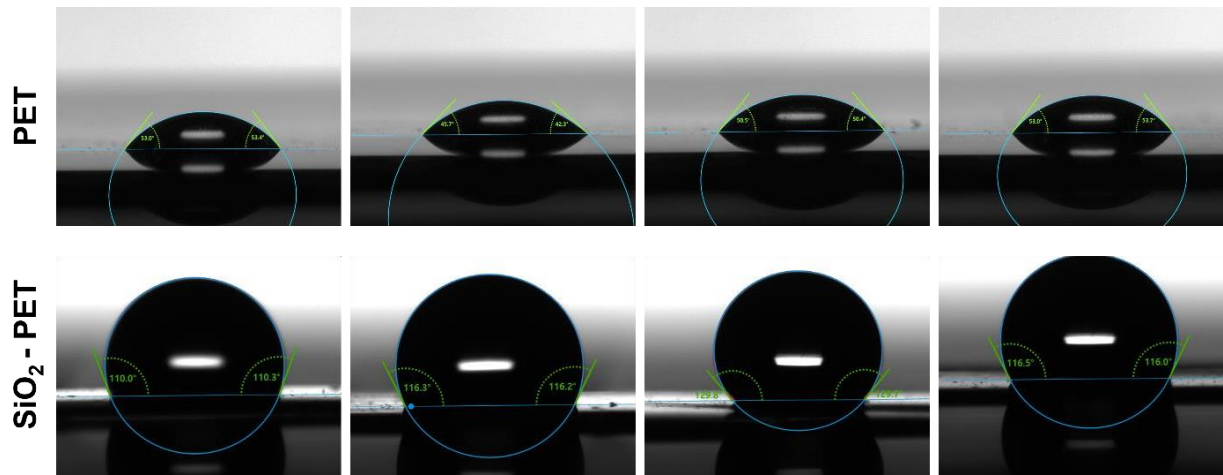
For better visualizing the vibrational fingerprint of SiO<sub>2</sub> and epoxy resin in FTIR spectra (refer to Figure 2D in the main text), the extended domain between 400 and 2000  $\text{cm}^{-1}$  were presented in Figure S2.



**Figure S2.** Bands responsible for SiO<sub>2</sub> and epoxy resin of plain PET and SiO<sub>2</sub>-deposited PET samples in FTIR analysis.

### S3. Water Contact Angle (WCA) Analysis

Figure S3 shows the water contact angle measurement on plain PET and SiO<sub>2</sub>-deposited PET surfaces at 4 random spots. All results in the main text were presented as mean  $\pm$  SD (refer to the Results and Discussions).



**Figure S3.** WCA analysis of plain PET and SiO<sub>2</sub>-deposited PET samples.

#### *S4. Dynamic contact angle analysis*

Roll-off angle test was performed to observe the impact of wettability on water droplets dynamic of the plain PET and SiO<sub>2</sub>-deposited samples (refer to the Materials and Methods in the main text). Results were shown in Video S1 and S2.

#### **Videos:**

**Video S1:** Roll-off angle test of plain PET film.

**Video S2:** Roll-of angle test of SiO<sub>2</sub>-deposited film.