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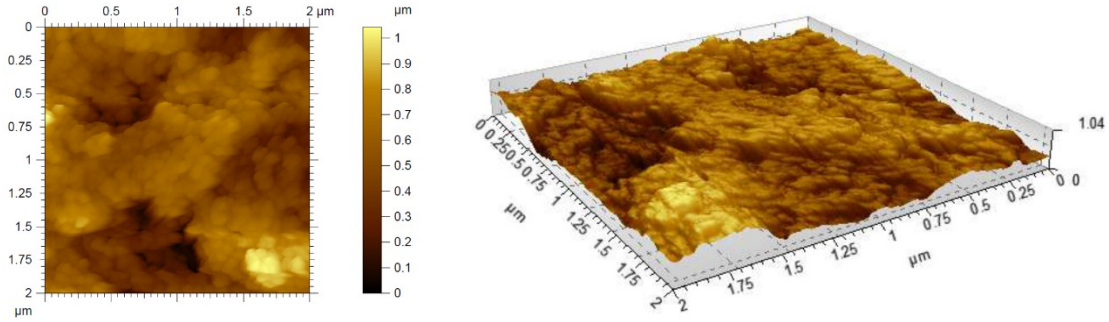


Fig. S1 2D and 3D surface morphology of the candle soot coated PSU membrane.

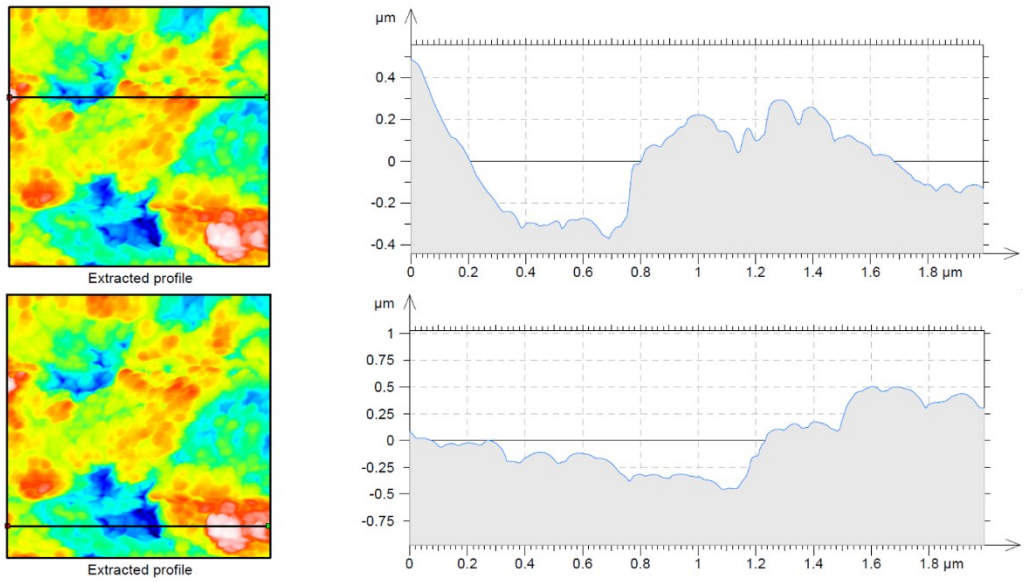


Fig. S2 Sectional analysis of the height along the line in the lift AFM graph.

Table S1 AFM surface roughness of the candle soot coated membranes: average roughness ($R_a$), root mean square roughness ($R_{rms}$), and maximum vertical difference between the highest and lowest points ($R_m$)

| Roughness | µm |
|---|---|
| Average roughness ($R_a$) | 0.135 |
| Root mean square roughness ($R_{rms}$) | 0.168 |
| Maximum vertical difference ($R_m$) | 1.04 |

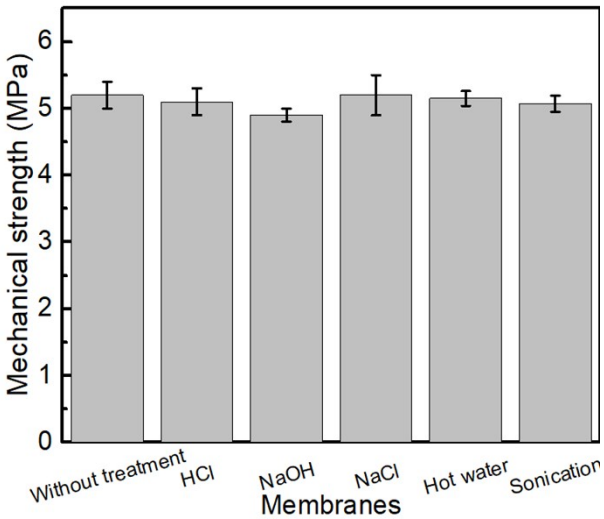


Fig. S3 Mechanical strength of the membranes after the stability test (immersion in 1 M HCl, 1 M NaOH, 1 M NaCl and hot water; sonication for 30 minutes).