Supplementary Information

Microscopy

Cross section images showing that all membranes consisted of interlinked fibers forming a porous polymeric body. As compared with the PVDF membrane, those modified with FS particles consisted of thicker strands, and less interlinking within the polymeric body of the membrane. Moreover, the finer features in the PVDF membrane facilitated more interlinking which resulted in a likely higher tortuosity than that of those modified with FS.

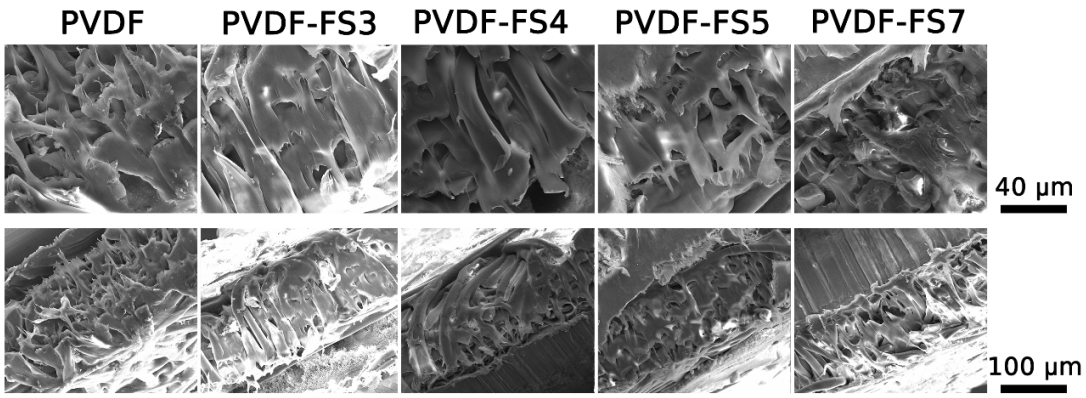

Figure S1. – Cross section images of the PVDF and FS-modified PVDF membranes. The addition of FS during the fabrication procedure disrupted the fine structure of the PVDF membranes, resulting in thicker polymeric strands, less interlinking, and a likely lower tortuosity.

Mechanical Strength

Mechanical characterization of the polymeric sheets show that the mechanical properties of the polymeric membranes are reasonable. Moreover, the tensile strength and elongation values at break decreased as FS content increased, indicating that the interfacial interactions between the polymer strands and the FS particles are weak. These results can also be related to the agglomeration of the FS particles in non-homogenous regions within the polymer membrane (Section 3.1).

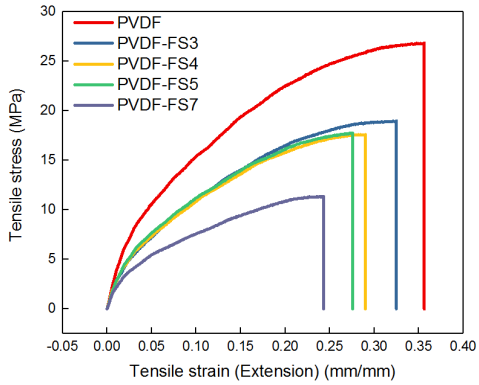

Figure S2. – Mechanical strength of the PVDF and FS-modified PVDF membranes. The results suggest that the mechanical strength of the membranes are reasonable. As FS content increased, ultimate strength and elongation values decreased.

Table S1 - Mechanical test results for as-fabricated PVDF and FS-modified PVDF samples. Mechanical strength properties decreased as FS content increased.

Sample	Ultimate Tensile Strength (MPa)	Elongation (%)
PVDF	26.82	36
PVDF-FS3	18.96	33
PVDF-FS4	17.59	29
PVDF-FS5	17.73	27
PVDF-FS7	11.34	24