Electronic Supplementary Information

Bio-based electrospun polyamide membrane – sustainable multipurpose filter membranes for microplastic filtration

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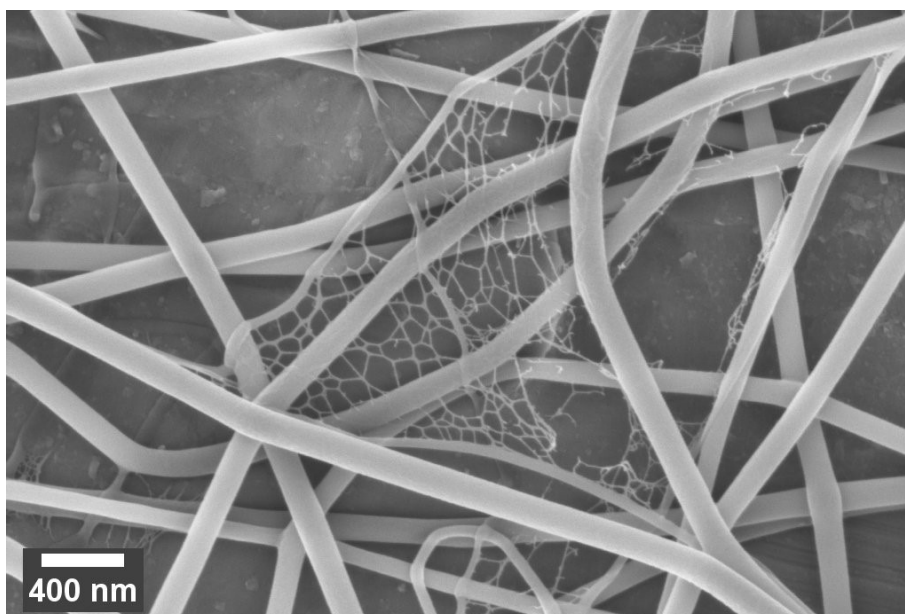
E-mail: greiner@uni-bayreuth.de

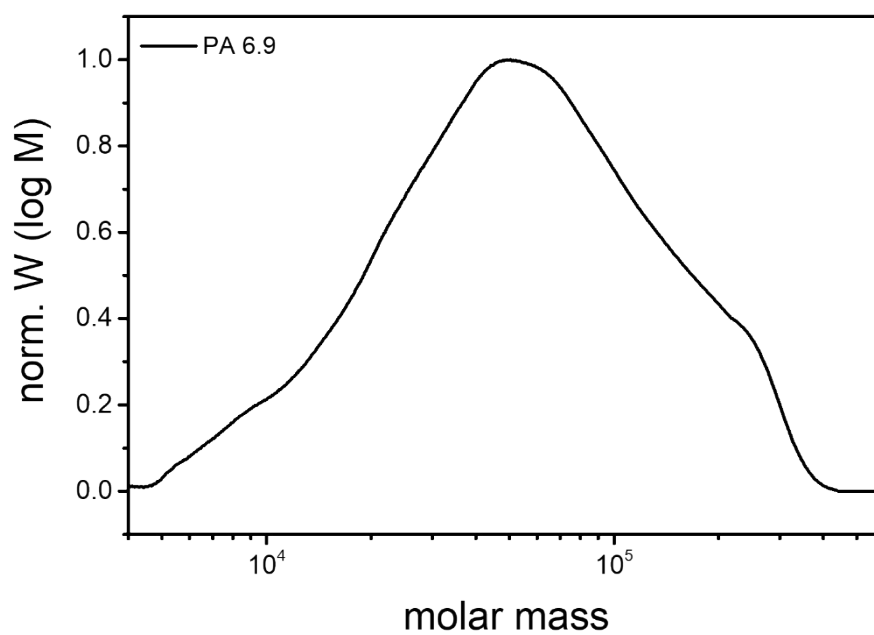**Figure S1**. SEM image of spider web-like structure found in PA 6.9 membrane prepared from 10 wt% solution in FA/CHCl$_3$.

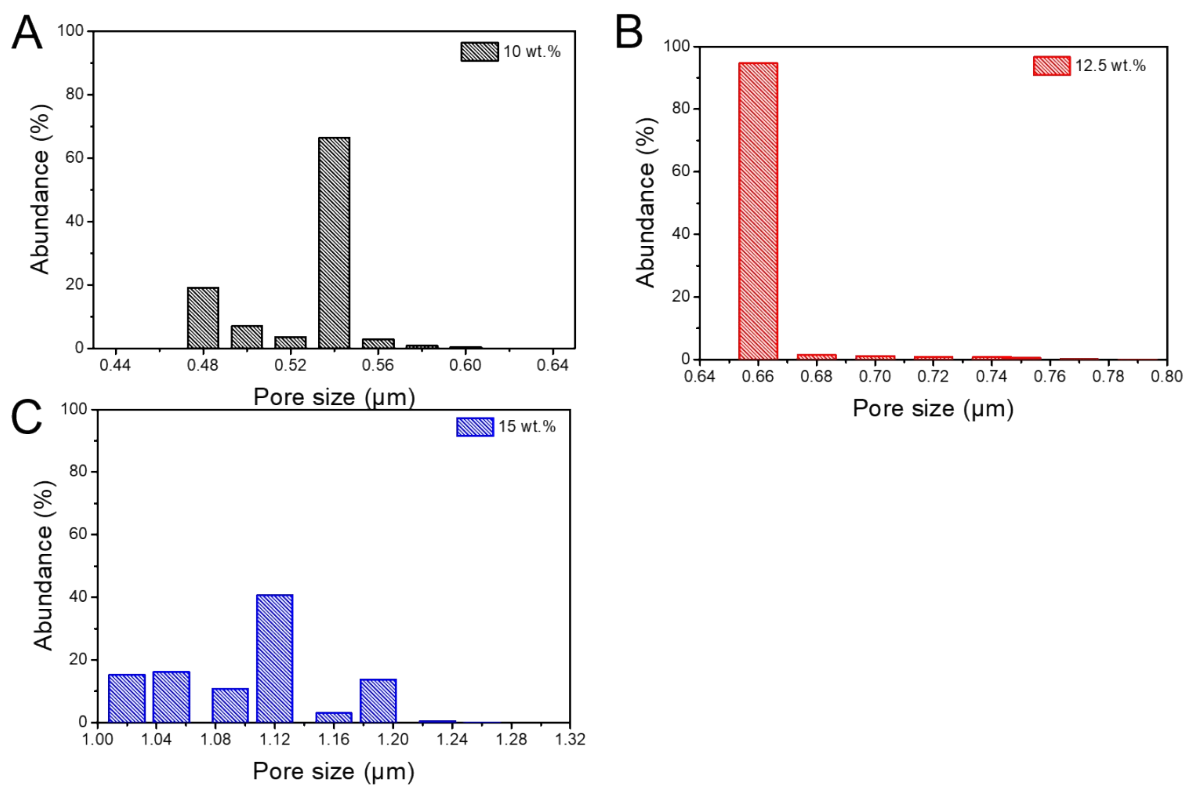**Figure S2**. Normalized molecular weight distribution of PA 6.9 measured by SEC.

Figure S3. Pore size distribution of the nonwovens measured by capillary flow porometry.

Table S1. Average weight and resulting density determined by gravimetrically weighing the tensile test specimens (30 × 5 mm) prior to being measured. At least 5 samples were measured and the statistical average is given.

Material	Thickness [μm]	Average weight [mg]	Average density [kg m^{-3}]	Basis weight [g m^{-2}]	Porosity[a] [%]
PA 6.9_10 wt%	54±4	0.97±0.06	119±10	6.4±0.4	89
PA 6.9_12.5 wt%	62±2	1.46±0.06	157±5	9.7±0.4	85
PA 6.9_15 wt%	60±3	1.01±0.09	112±7	6.8±0.6	90

[a] Calculated from the density of bulk PA 6.9 (1080 kg m^{-3}) and the average density of the membrane.
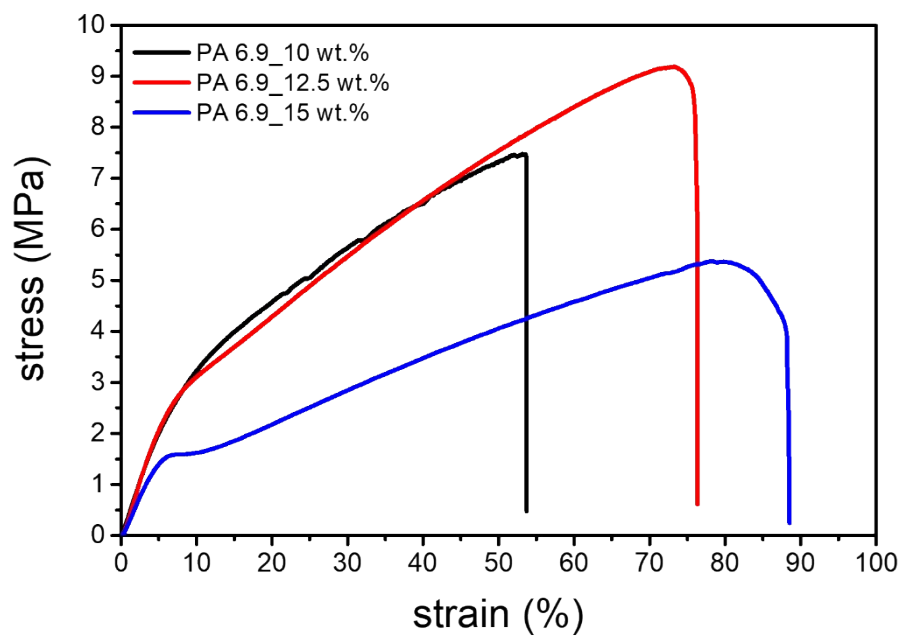
Figure S4. Stress-strain curves of the electrospun membranes prepared from PA 6.9.
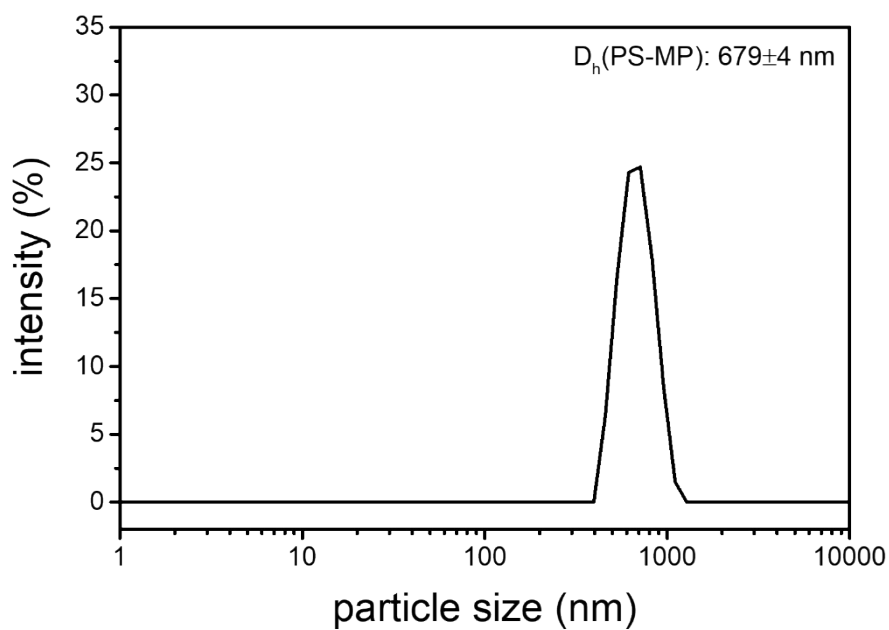

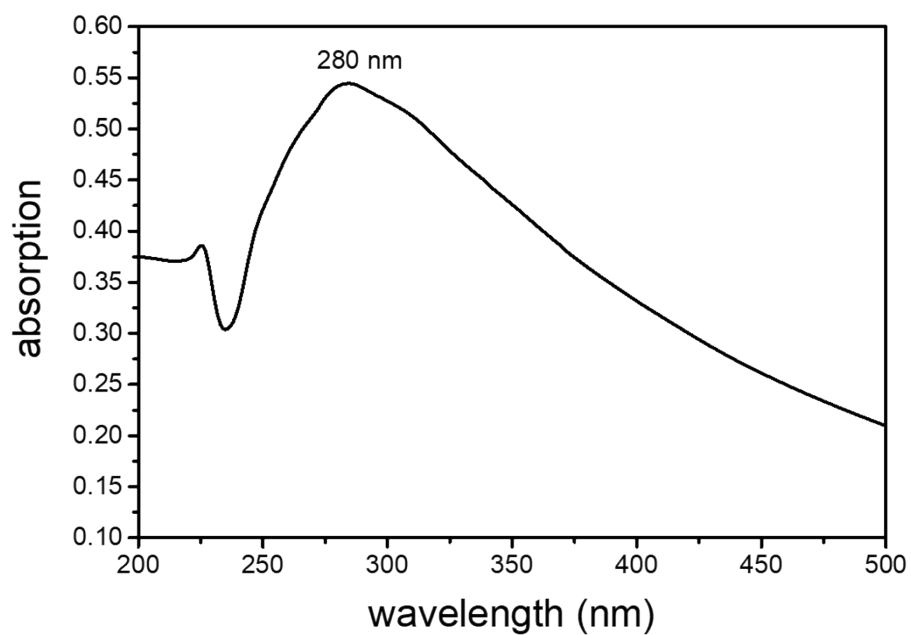**Figure S5.** DLS measurement of the prepared PS microparticle dispersion in water.

Figure S6. Absorption spectrum of the prepared PS microparticle dispersion in water.

Figure S7. Measurement setup for the aqueous filtration of PS microparticles from water with parallel measurement of the pressure drop.
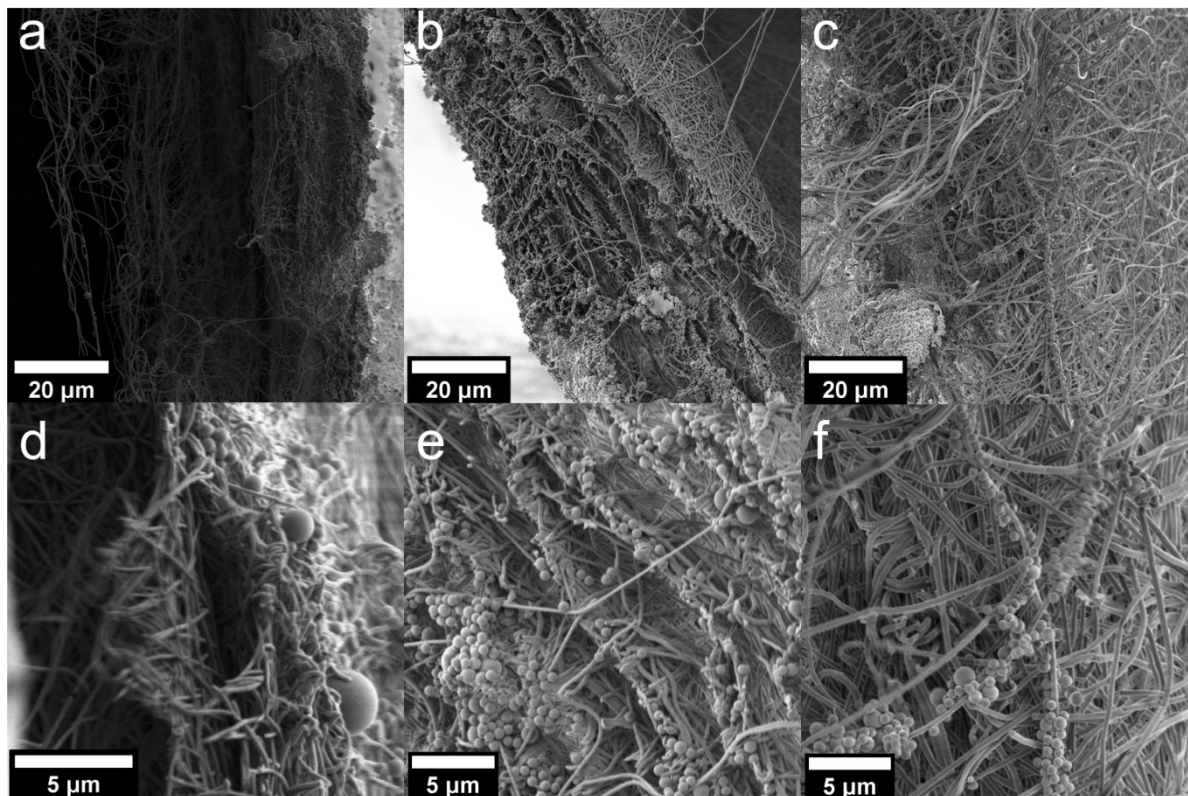
Figure S8. SEM pictures of the cross section of the electrospun filter membranes prepared from PA 6.9 solutions in formic acid chloroform 1:1 v/v a & d) 10 wt%, b & e) 12.5 wt% and c & f) 15 wt%.