

Supplementary Material

A multilayered surface for the interactive separation of perchlorate from aqueous media

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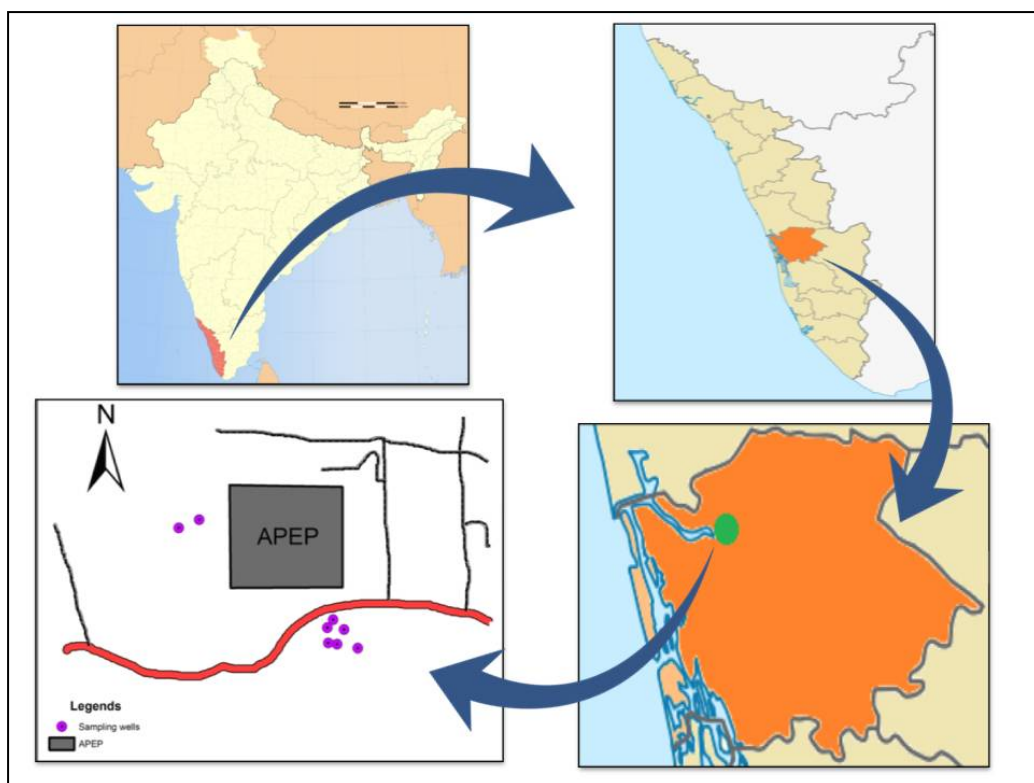


Fig. S1. Location map showing the sampling sites

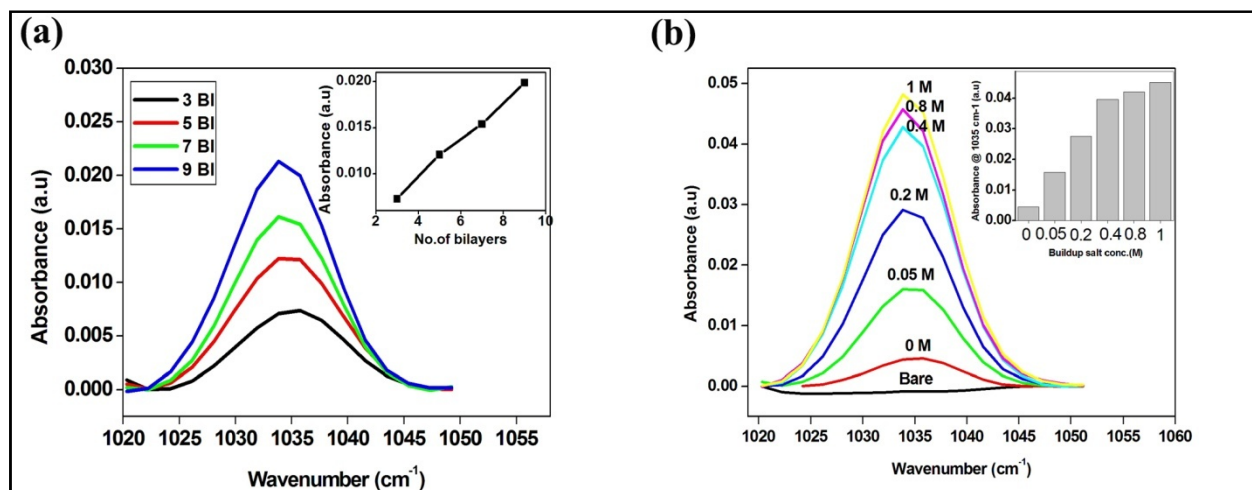


Fig. S2. (a) Layer dependent built up of PEI/PSS on PES as absorbance peak at 1035 cm^{-1} as a function of number of bilayers deposited from 0.02 M PEI and PSS solutions ($\text{pH } 6$) containing 0.15 M NaCl, inset: peak intensity as a function of number of bilayers (b) Growth of 9 bilayered PEI/PSS dependent on ionic strength (0 M - 1 M) absorbance peak at 1035 cm^{-1} as a function of

number of build up salt concentration, inset: peak intensity as a function of build up salt concentration

Table S1. **Stability of multilayers during filtration studies.** Concentration of multilayers were analysed by FTIR spectroscopy before and after the filtration so as to study the stability of multilayers during filtration.

Intensity of absorbance peak at 1035cm^{-1} before filtration	Intensity of absorbance peak at 1035cm^{-1} After filtration	% change in intensity	Red shift or blue shift
2.05×10^{-2}	2.0×10^{-2}	2.4 %	No change

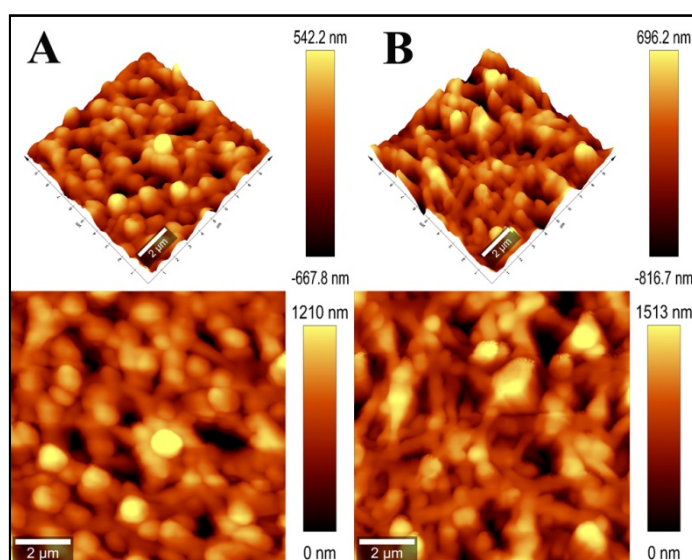


Fig. S3. AFM images of PEMs before (A) and after (B) treatment in pH 4 solution for 30 mins

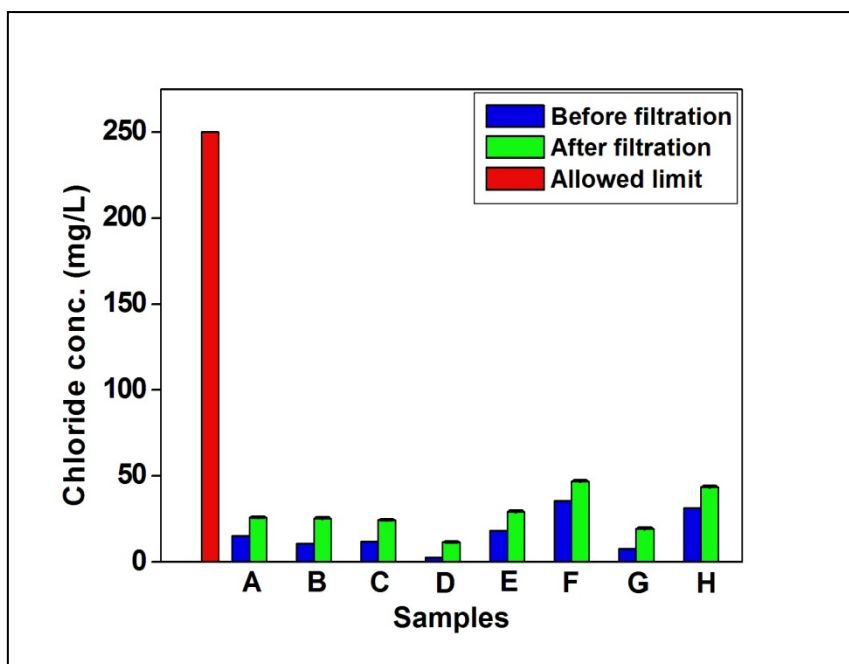


Fig. S4. Chloride release during the ClO_4^- filtration through 1M capped PEMs (n= 3).

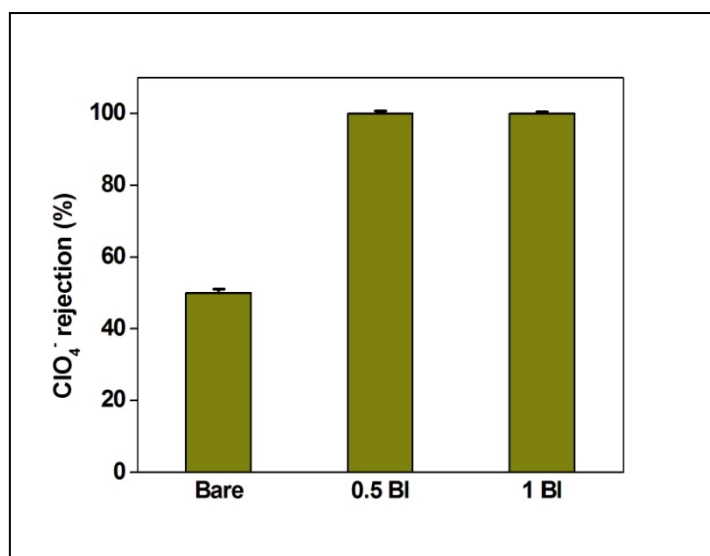


Fig. S5. ClO_4^- removal efficiency of PEMs modified sand bed column (n= 3).

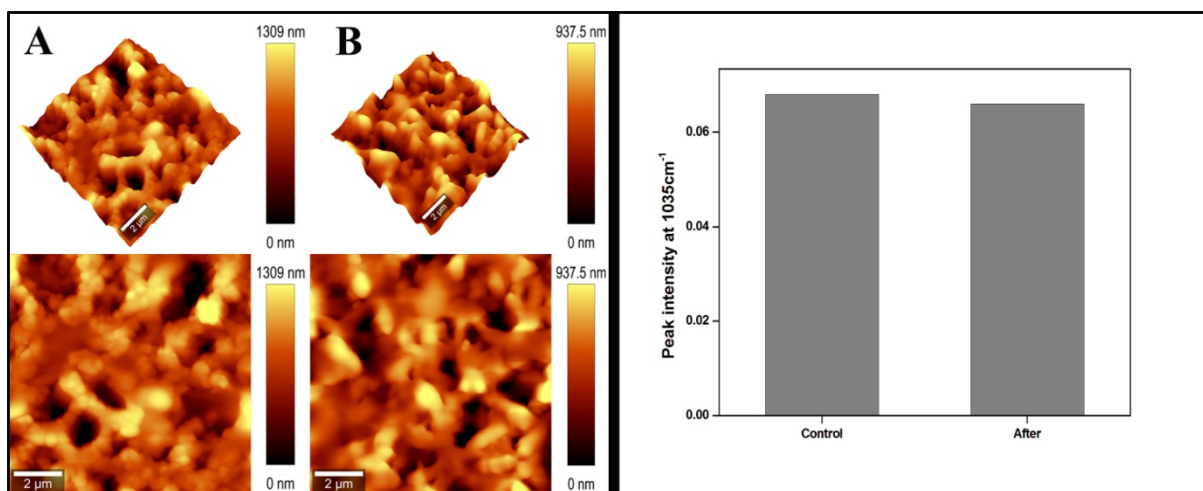


Fig. S6. AFM images of PEMs before (A) and after (B) treatment in 1M NaCl solution for 2 hrs (Left) and corresponding IR intensities (Right)