

Electronic Supporting Information (ESI)

**CO₂-gated anodic aluminum oxide based nanocomposite membrane
for de-emulsification**

Xia Huang^{1,2}, Hatice Mutlu², and Patrick Theato^{1,2,}*

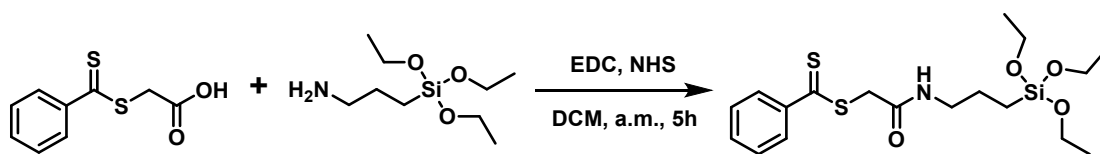
¹Institute for Chemical Technology and Polymer Chemistry (ITCP), Karlsruhe Institute of Technology (KIT), Engesserstr.18, D-76131, Karlsruhe, Germany

²Soft Matter Laboratory, Institute for Biological Interfaces III (IBG 3), Karlsruhe Institute of Technology (KIT), Herrmann-von-Helmholtz-Platz 1, D-76344, Eggenstein-Leopoldshafen, Germany

*Corresponding author

Prof. Patrick Theato

E-mail: patrick.theato@kit.edu



Scheme S1. Synthesis of silanized chain transfer agent 2-oxo-2-((3-(triethoxysilyl)propyl)amino)ethyl benzodithioate (SiO-CTA)

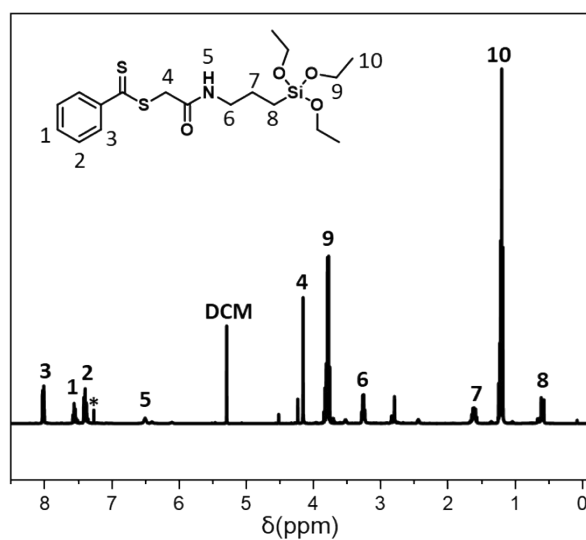


Figure S1. ^1H NMR (400 MHz, CDCl_3) spectrum of silanized chain transfer agent 2-oxo-2-((3-(triethoxysilyl)propyl)amino)ethyl benzodithioate (SiO-CTA). The * indicates the residual signal of the solvent CHCl_3 .

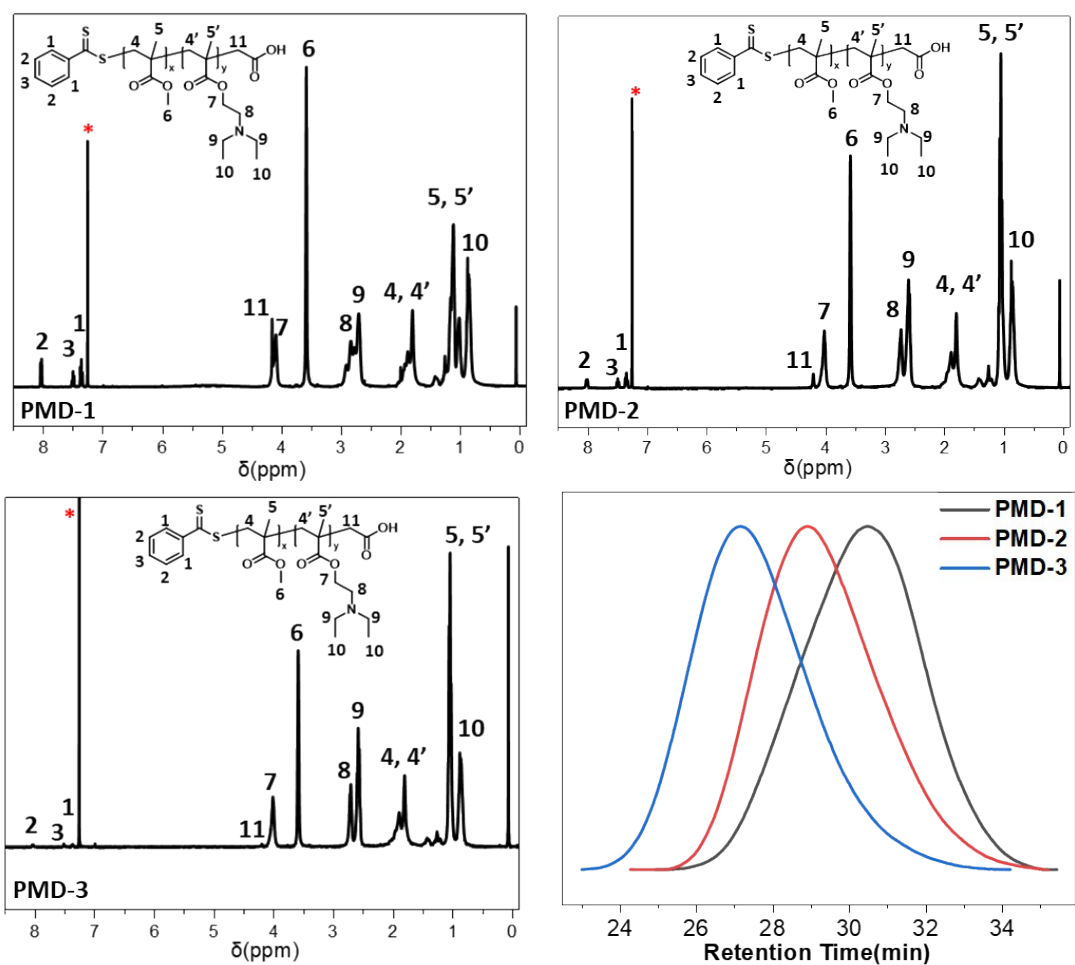


Figure S2. ^1H NMR (400 MHz, CDCl_3) spectrum and GPC curve of in DMAc of PMD-1, PMD-2 and PMD-3. The * indicates the residual signal of the solvent CHCl_3 .

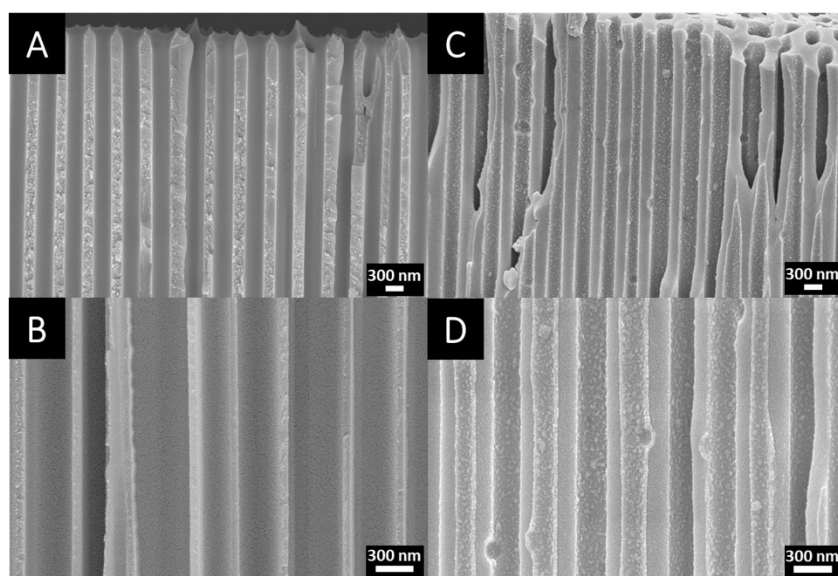


Figure S3. Comparative cross-section SEM images of (A, B) pristine AAO, (C, D) AAO-g-PMD

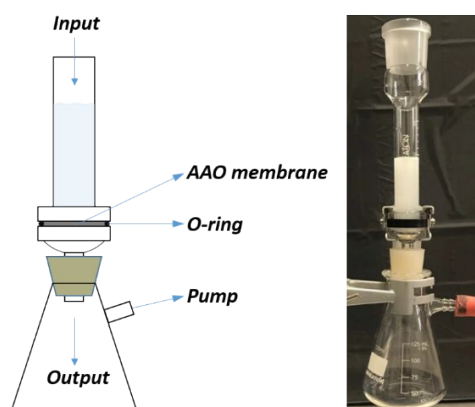


Figure S4. A schematic (left) and optical image (right) of flux measurement cell.