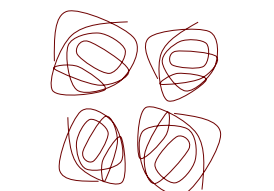
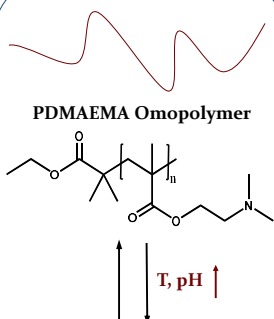
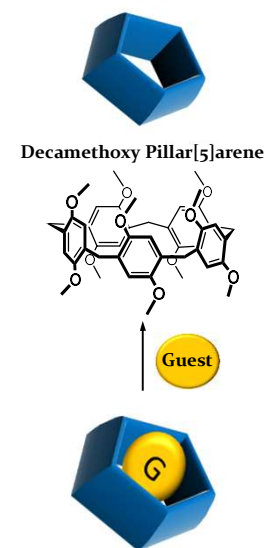


Design and Synthesis



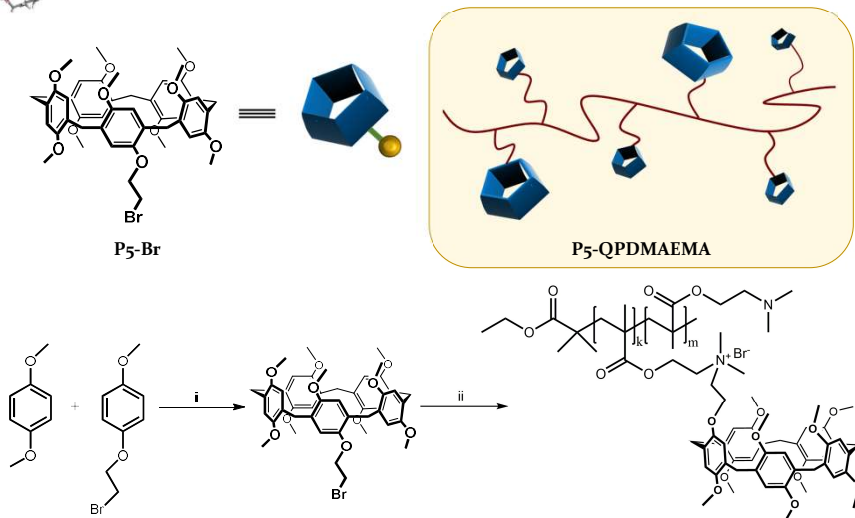
Stimuli responsive properties of PDMAEMA.¹



Host-guest properties of pillar[5]arenes.²

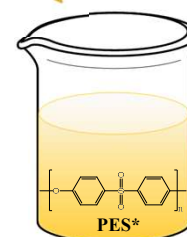
¹ V. Bütün et al., *Polymer* 2001, 42, 5993–6008;

² T. Ogoshi et al., *J. Am. Chem. Soc.* 2008, 130, 5022–5023.



Reagents and conditions : i) (HCHO)_n, FeCl₃, CH₂Cl₂, r.t., 3 h, 60%; ii) PDMAEMA, DMF, 50 °C, 10 d.

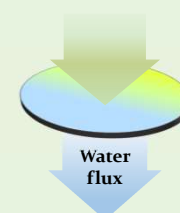
Or PDMAEMA



NIPS process
at various
coagulation pH

*and PVP as pore former

Blend Membranes for ultra/nanofiltration processes



Blend Beads for selective dye removal



Results and Conclusions

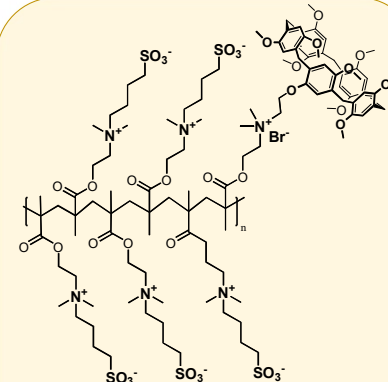
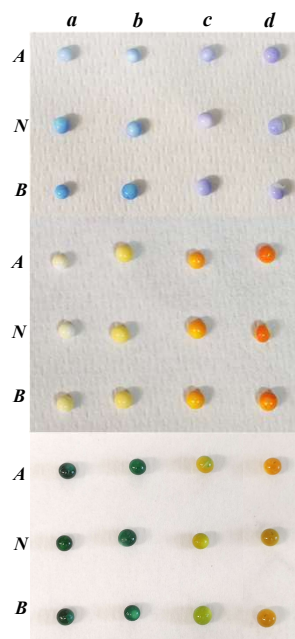
Name	Polymer Blends
a	PES
b	PES(90%)/PVP(10%)
c	PES(90%)/PVP(5%)/PDMAEMA(5%)
d	PES(90%)/PVP(5%)/P5-QPDMAEMA(5%)



Beads were prepared with three different coagulation baths

- 0.5 M HCl (Acid=A)
- DI Water (Neutral=N)
- 0.5 M NaOH (Basic=B)

Qualitative beads adsorption tests (from top) of 50μM methylene blu (MB), methyl orange (MO), both dyes mixed solutions.

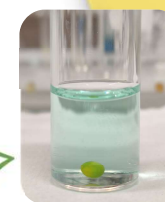


Zwitterionic beads were produced by a post functionalization of «B-d» beads with 1,4-butanediol, CH₃OH, 40 °C, 12h.



Qualitative zwitterionic beads adsorption tests (from left) of 50μM methylene blu, methyl orange, both dyes mixed solutions.

- ✓ Synthesis of P5-Br derivative;
- ✓ Synthesis of P5-QPDMAEMA polymer;
- ✓ Preparation of blend membranes and beads with PES and PVP by NIPS process;
- ✓ Preliminary tests for potential applications of the P5-QPDMAEMA blend beads as selective adsorbent systems for anionic organic dyes (methylene blue);
- ✓ Preparation and preliminary adsorption tests of zwitterionic beads prepared by post functionalization for the removal of MO and MB.



- ✓ Preliminary release tests in EtOH after MO+MB adsorption by the zwitterionic bead.

Acknowledgments

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