A screenshot of a cell phone

Description generated with very high confidence

Enhancement in C-OH peak

Enhancement in OH peak

(a)

A screenshot of a cell phone

Description generated with very high confidence

Enhancement in C=O peak

peak

Enhancement in OH peak

(b)

A screenshot of a cell phone

Description generated with very high confidence

Enhancement in Imidazolium peak

peak

(c)

A screenshot of a cell phone

Description generated with very high confidence

Enhancement in Imidazolium peak

peak

(d)

**Supplementary Figure 1:** **(a)** Enhancement of carbonyl peak intensity for HEMA modified membranes; **(b)** Enhancement of carbonyl peak intensity for AA modified membranes; **(c)** Enhancement of imidazolium peak intensity for allyl modified membranes; **(d)** Enhancement of imidazolium peak intensity for bromo modified membranes.

A screenshot of a cell phone

Description generated with very high confidence

A close up of a map

Description generated with very high confidence

**(a)**

**(b)**

A screenshot of a cell phone

Description generated with very high confidence

A screenshot of a cell phone

Description generated with very high confidence

**(c)**

**(d)**

A screenshot of a cell phone

Description generated with very high confidence

**(e)**

**Supplementary Figure 2:** Flux versus distillate volume for consecutive DCMD cycles (a) base PP membrane; (b) HEMA modified membrane; (c) AA modified membrane; (d) allyl modified membrane; (e) hexyl modified membrane. For modified membranes the polymerization time was 5 min.

A screenshot of a cell phone

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**Supplementary Figure 3:** Flux as a function of distillate volume for 2nd DCMD cycle. For modified membranes the polymerization time was 10 min.