

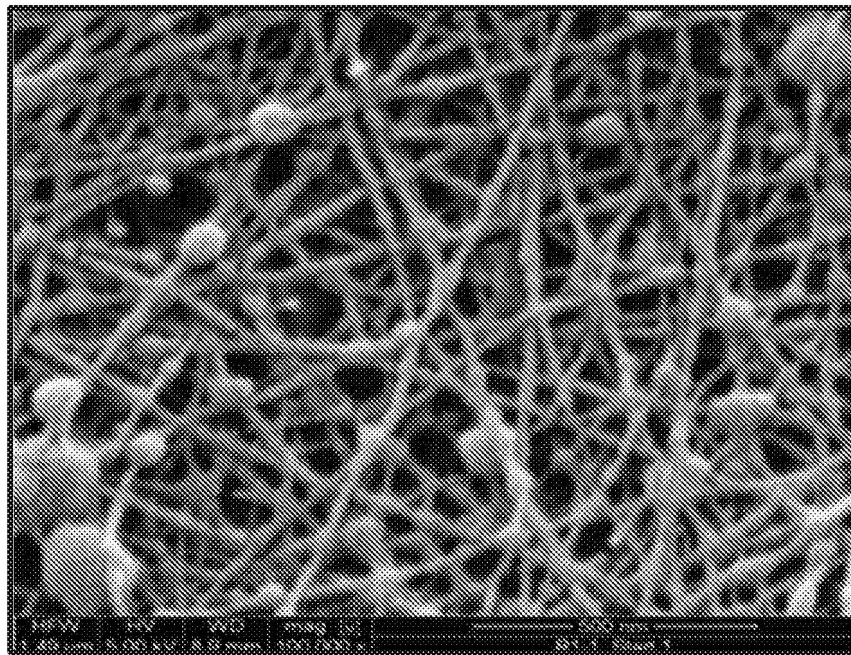


Figure 1.
SEM Image of NF UF at 100,000X

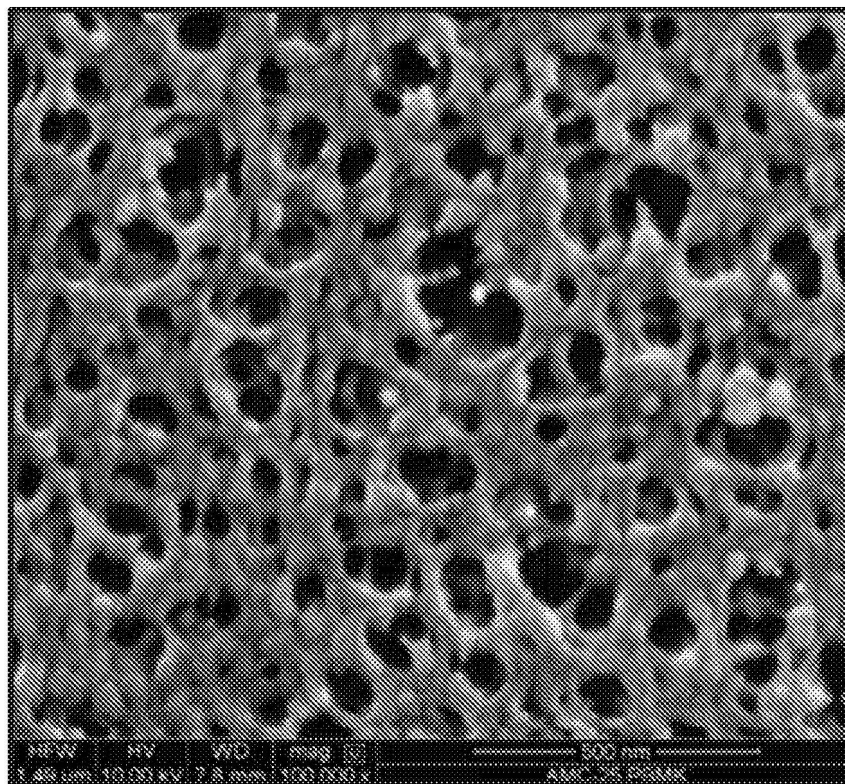


Figure 2.
SEM Image of PES UF at 100,000X

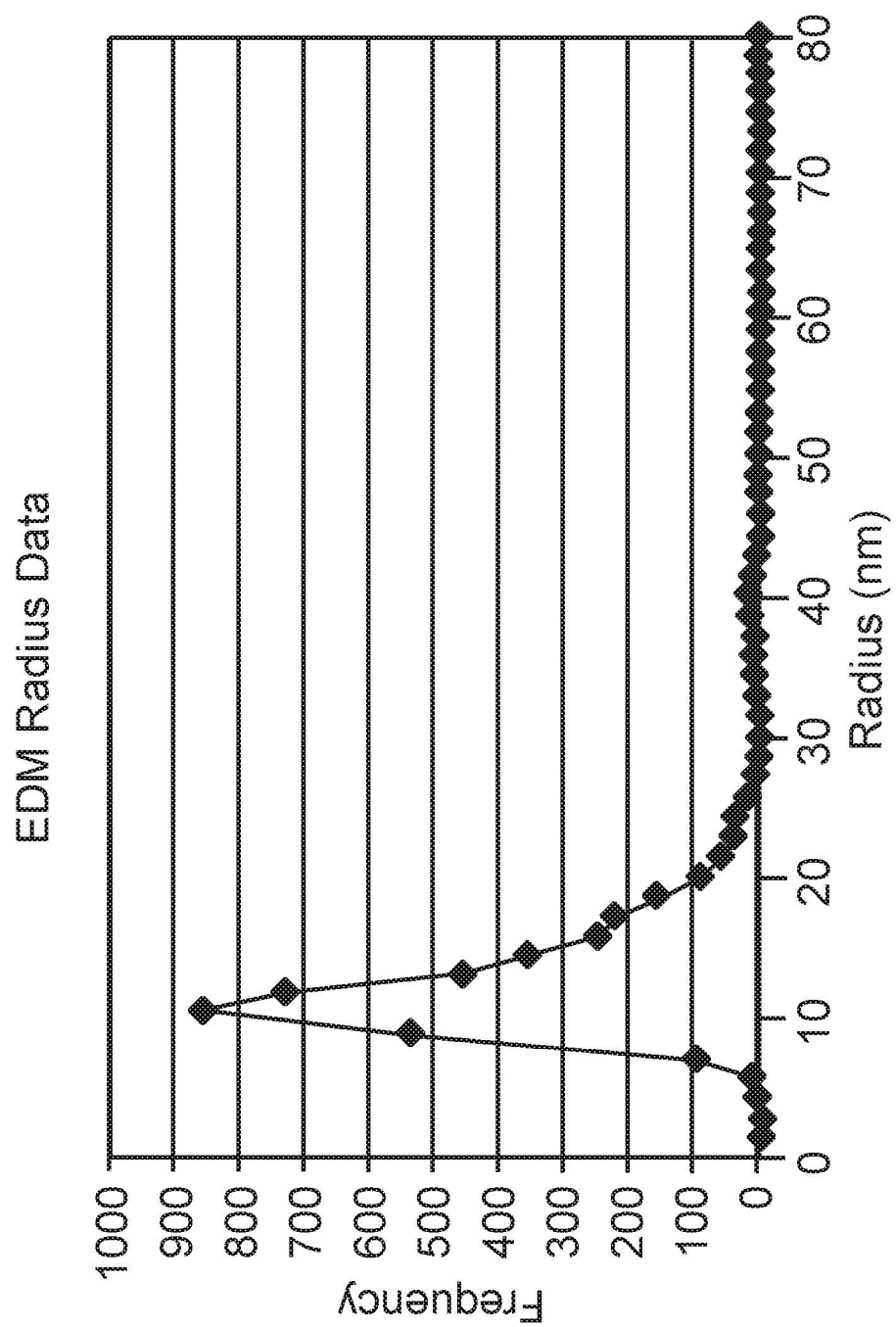


Figure 3
NF UF fiber diameter measurements

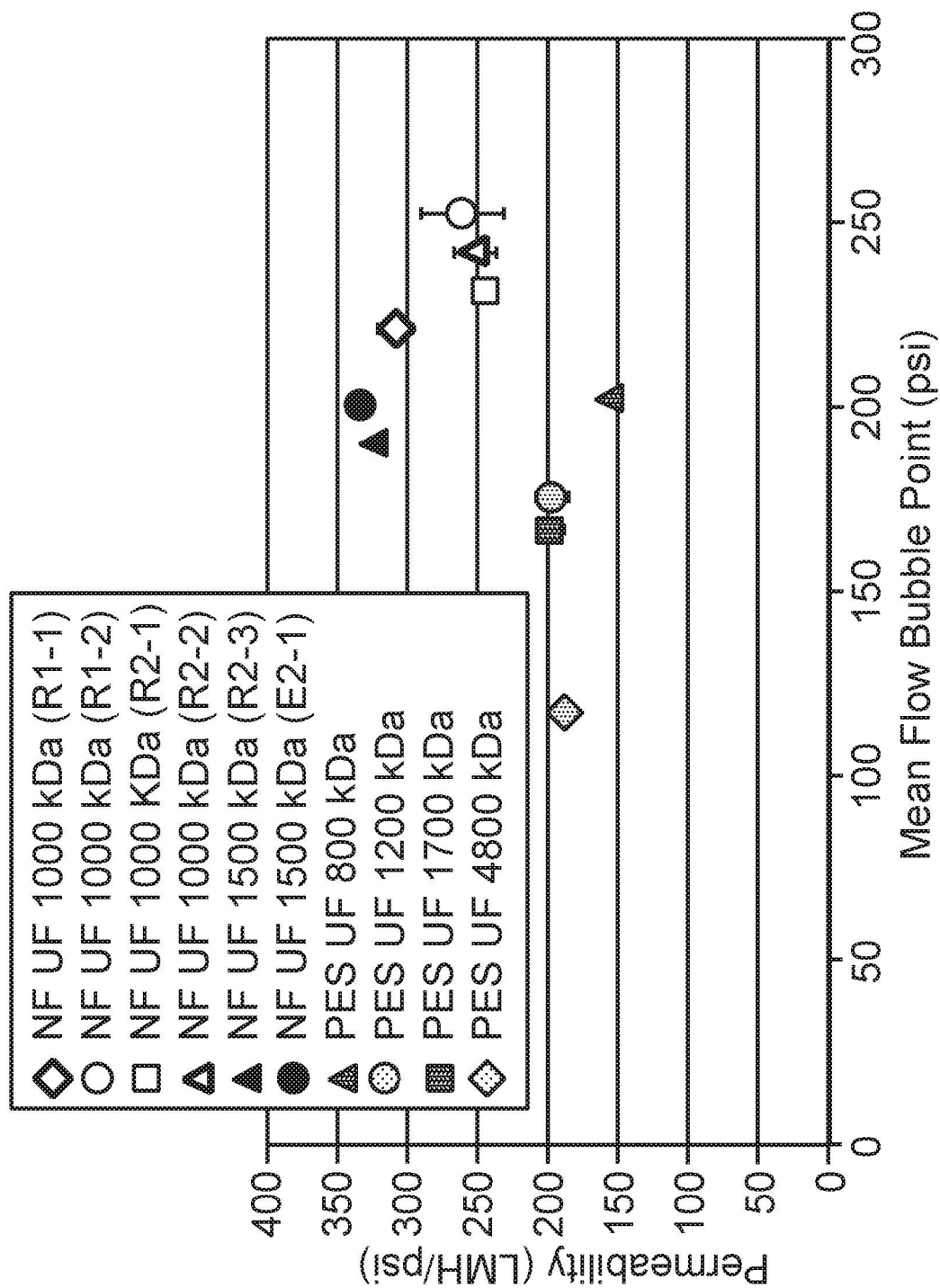


Figure 4
Water permeability vs Mean Flow Bubble Point (IPA)

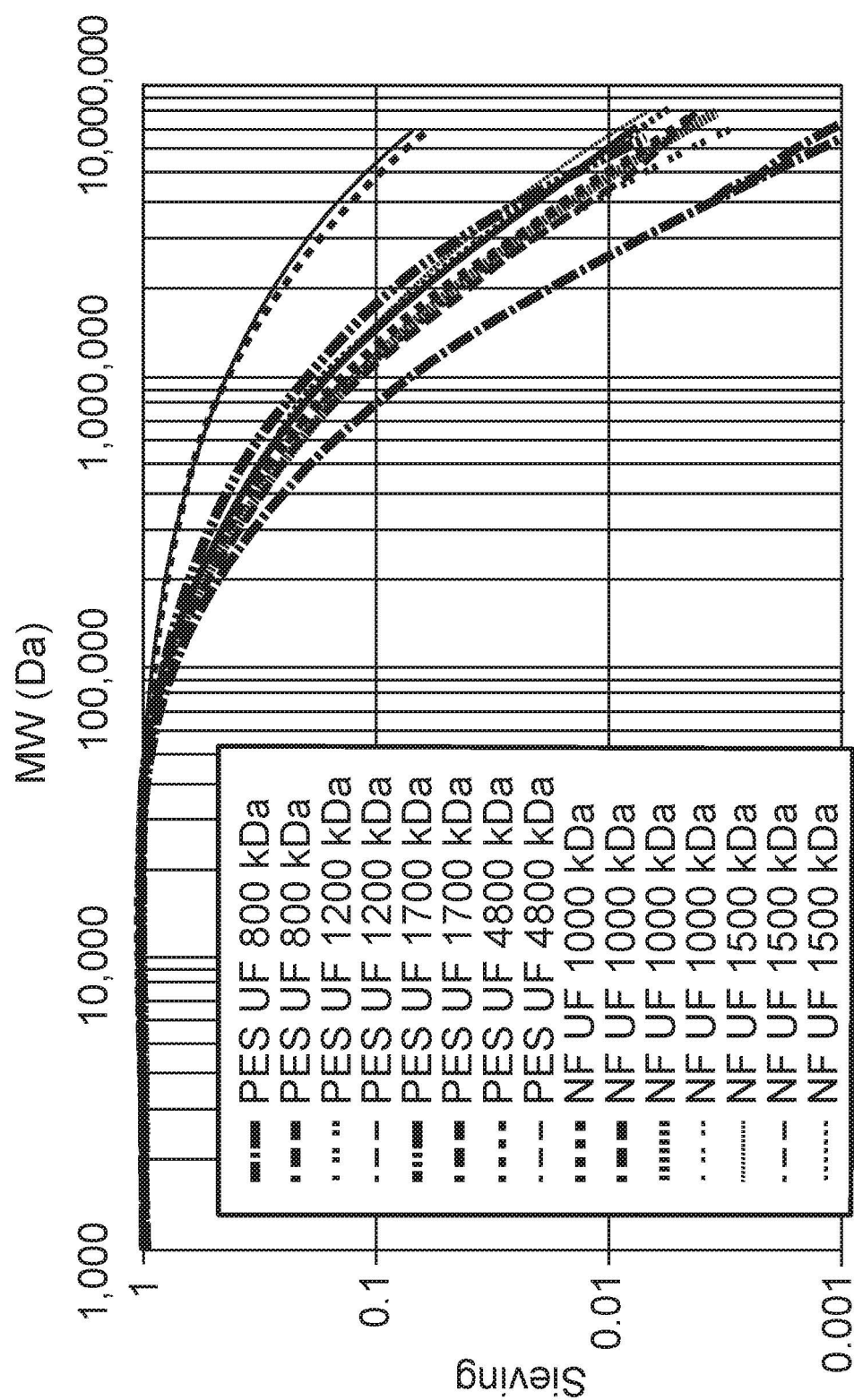


Figure 5
Dextran Sieving Curves used to determine Dextran R90 cutoffs for NF UF and PES UF

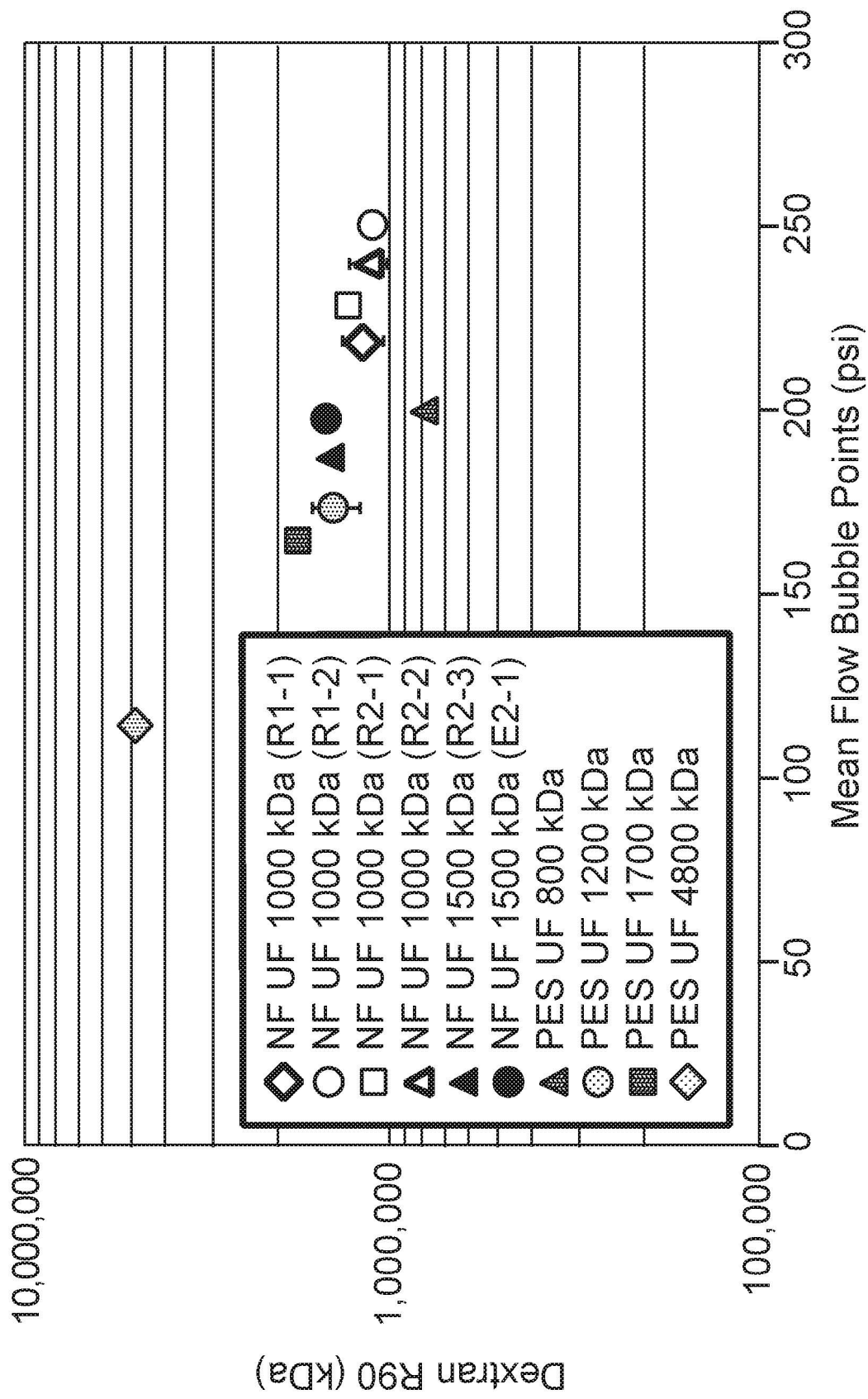


Figure 6
Average Dextran R90 vs Mean Flow Bubble Point (IPA)

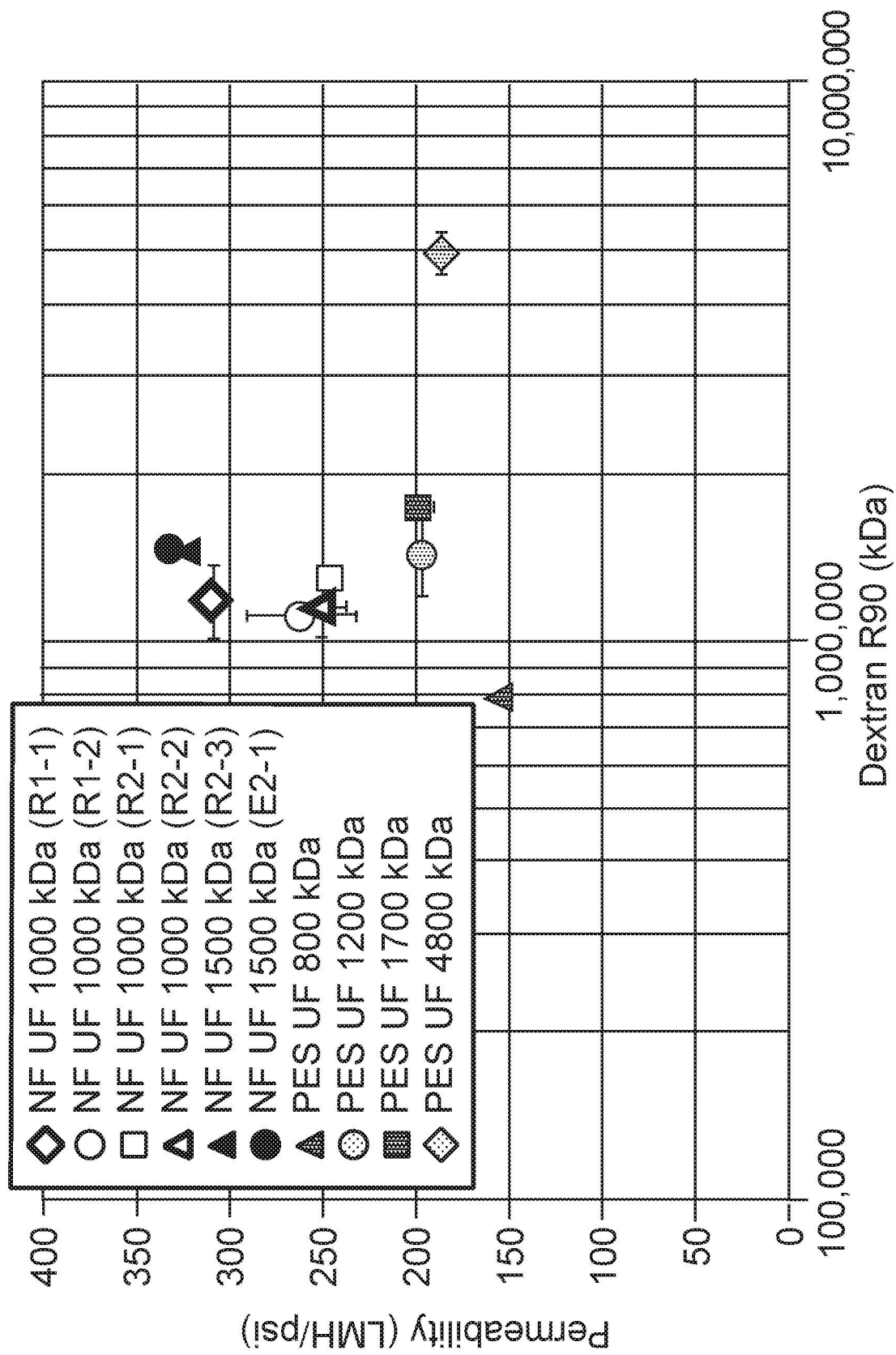


Figure 7
Water Permeability vs Average Dextran R90

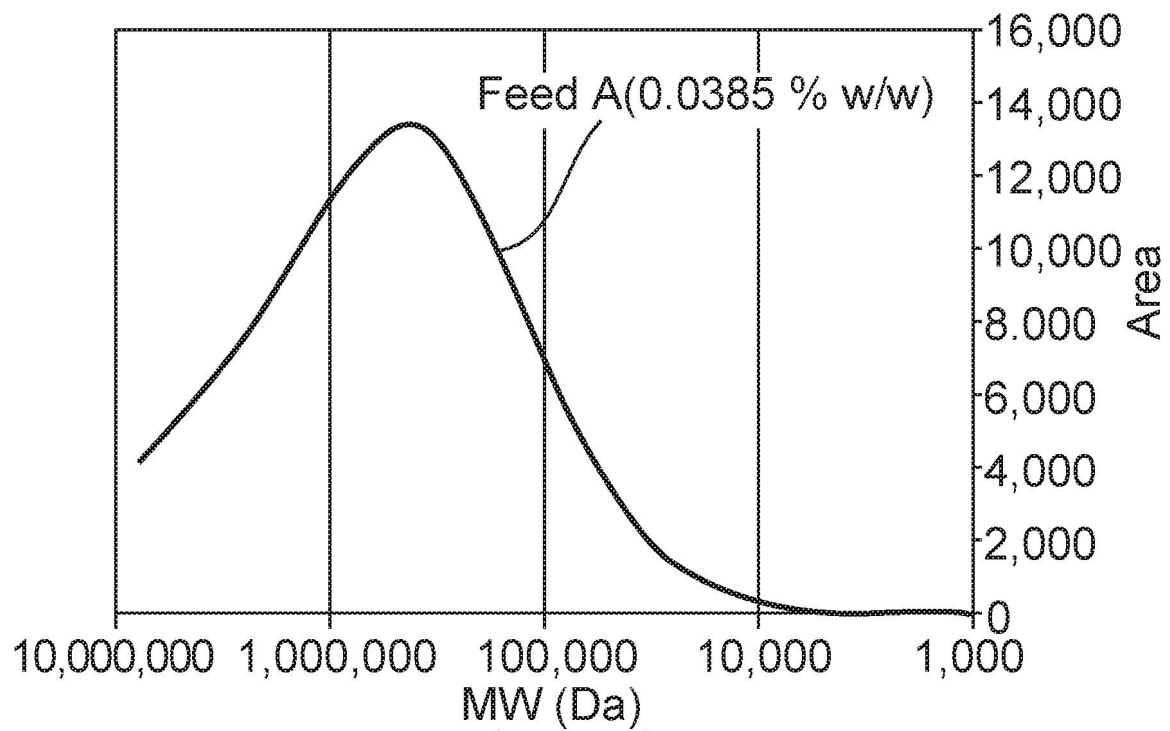


Figure 8
Gel Permeation Chromatogram of Feed A (0.0385% w/w)
in pH 7.0, 50 mM phosphate buffer

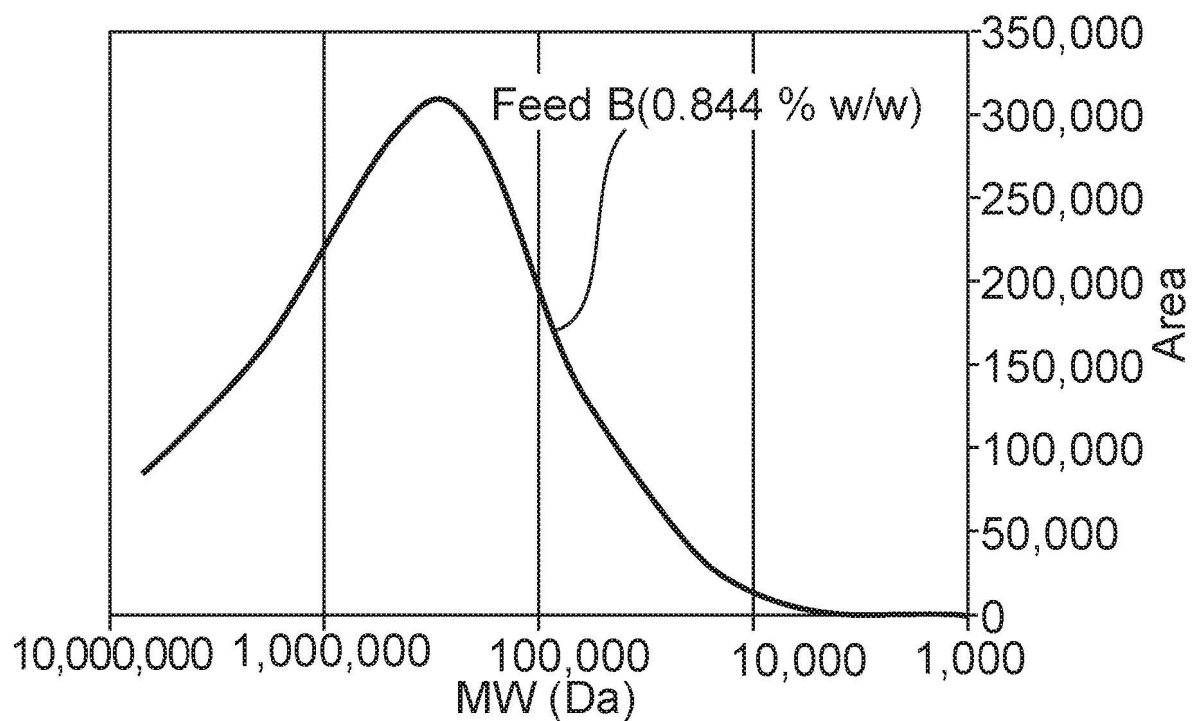


Figure 9
Gel Permeation Chromatogram of Feed B (0.844% w/w)
in pH 7.0, 50 mM phosphate buffer

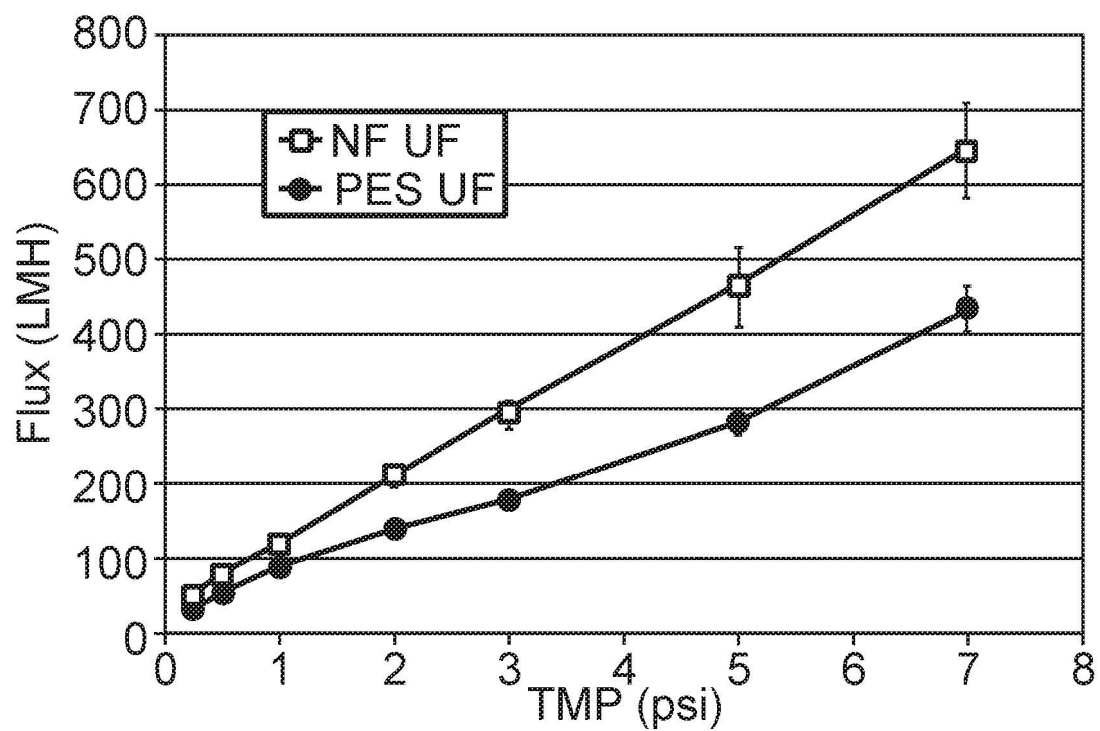


Figure 10

Flux vs TMP for NF UF and PES UF with Feed A
(0.0385% w/w)

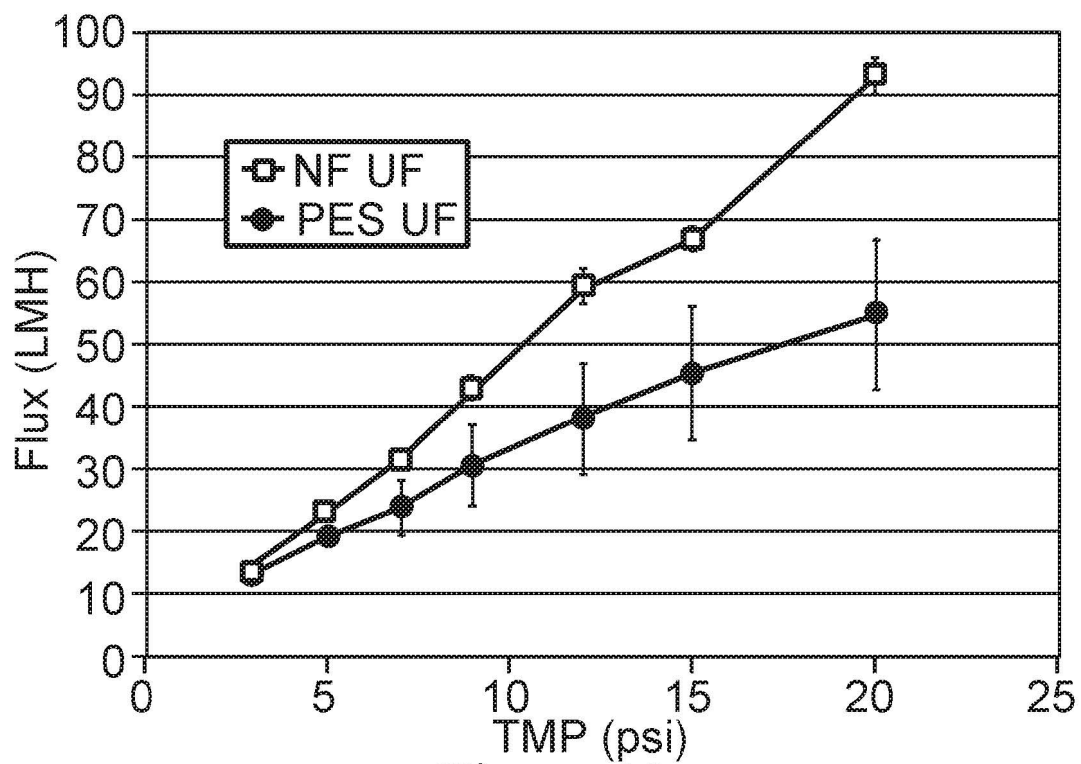


Figure 11

Flux vs TMP for NF UF and PES UF with Feed B
(0.844% w/w)

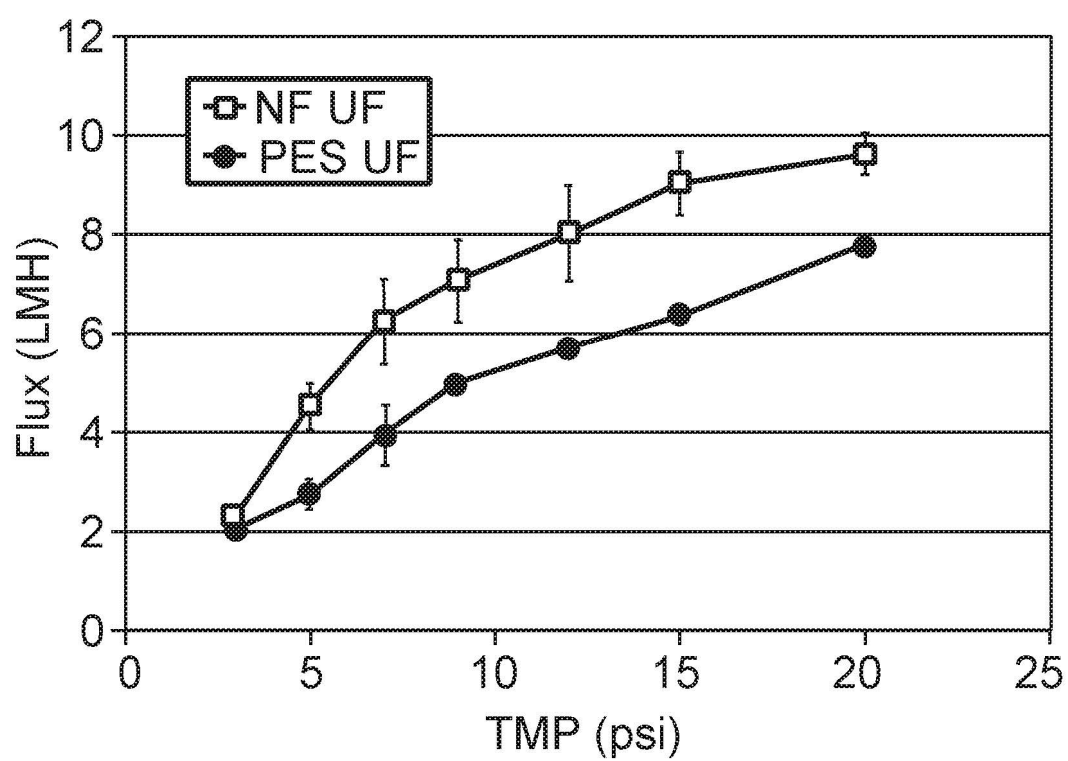


Figure 12
Flux vs TMP for NF UF and PES UF with Feed C
(8.44% w/w)

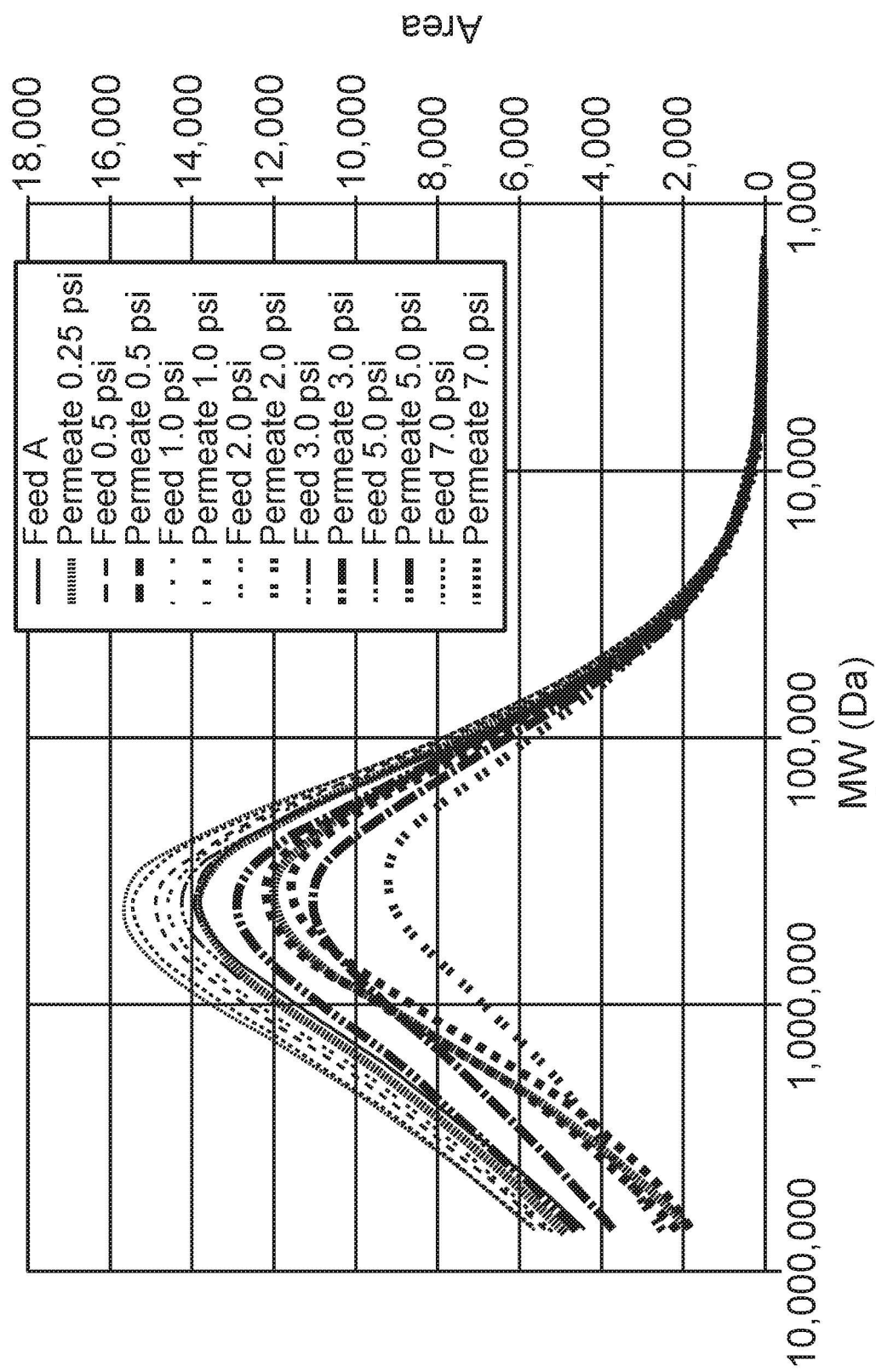


Figure 13

Gel permeation chromatograms showing Mass Transport through NF UF during Flux vs TMP for Feed A (0.0385% w/w)

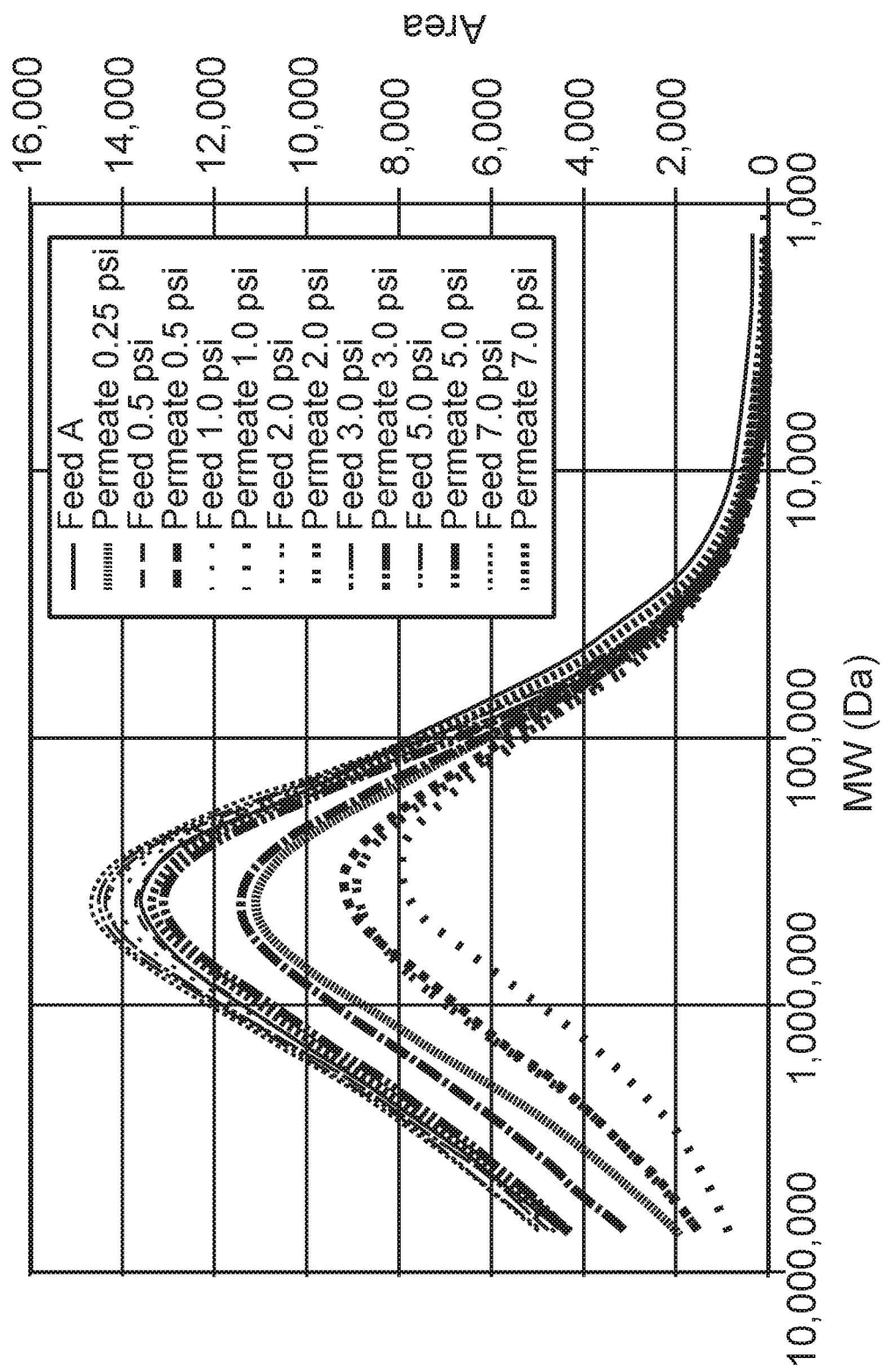


Figure 14

Gel permeation chromatograms showing Mass Transport through PES UF during Flux vs TMP for Feed A (0.0385% w/w)

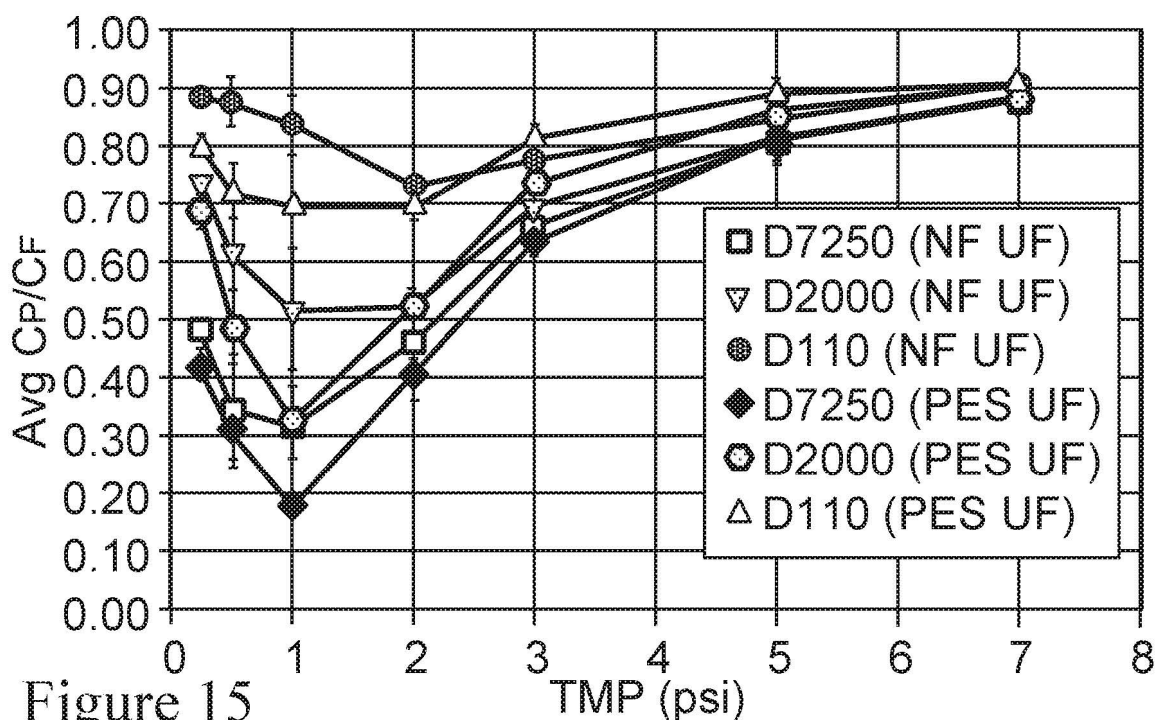


Figure 15

Mass/Concentration Transport of D7250, D2000, D110 for NF UF and PES UF through the Flux vs TMP experiment for feed A (0.0385% w/w)

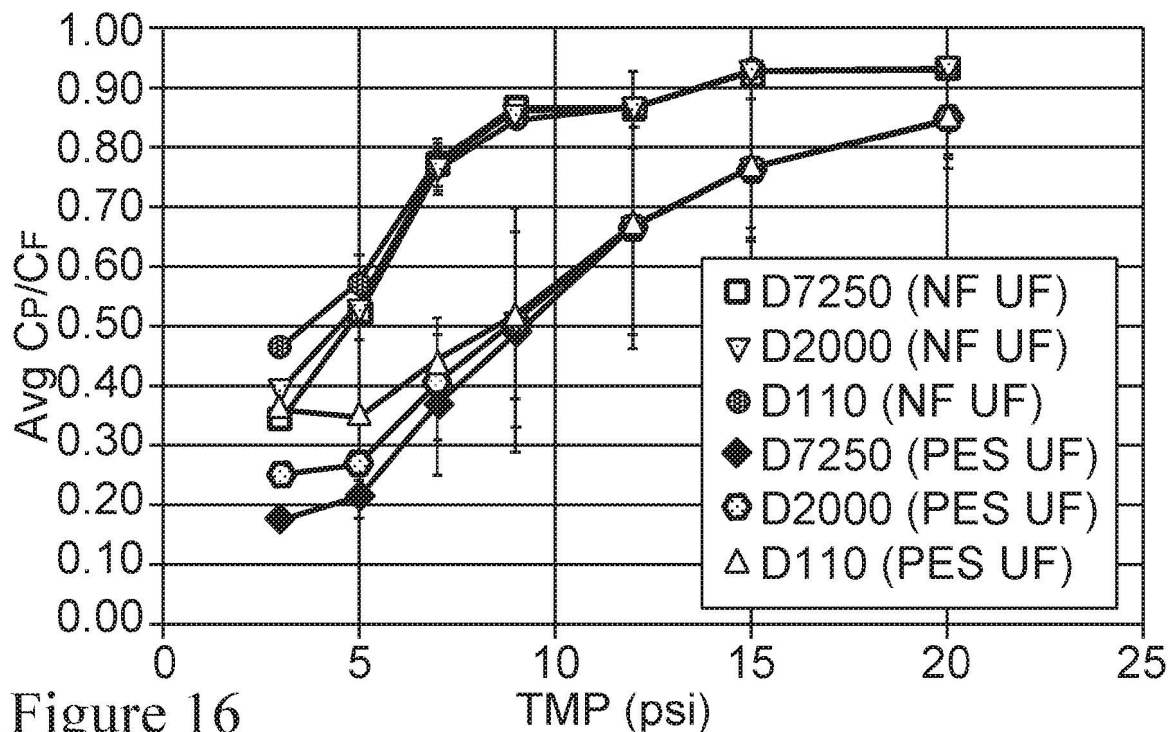


Figure 16

Mass/Concentration Transport of D7250, D2000, D110 for NF UF and PES UF through the Flux vs TMP experiment for feed B (0.844% w/w)

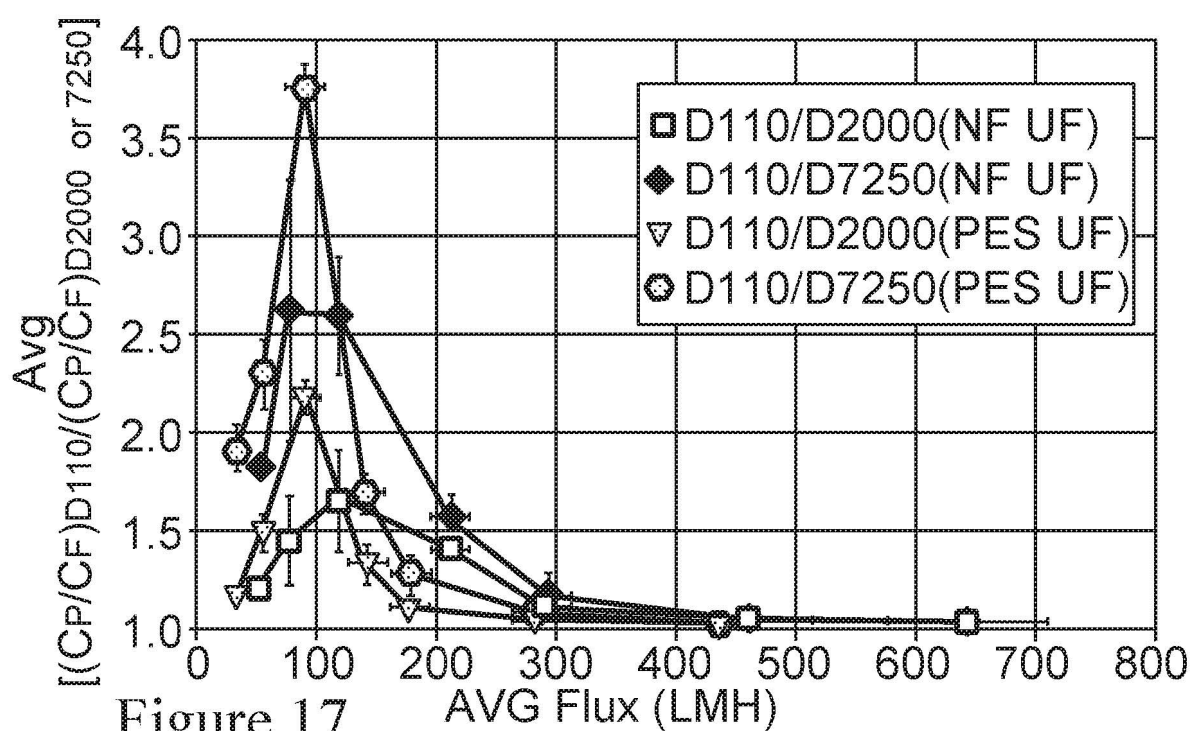


Figure 17
Selectivity D110/D2000 and D110/D7250 vs Flux for NF UF and PES UF through the Flux vs TMP experiment for Feed A (0.0385% w/w)

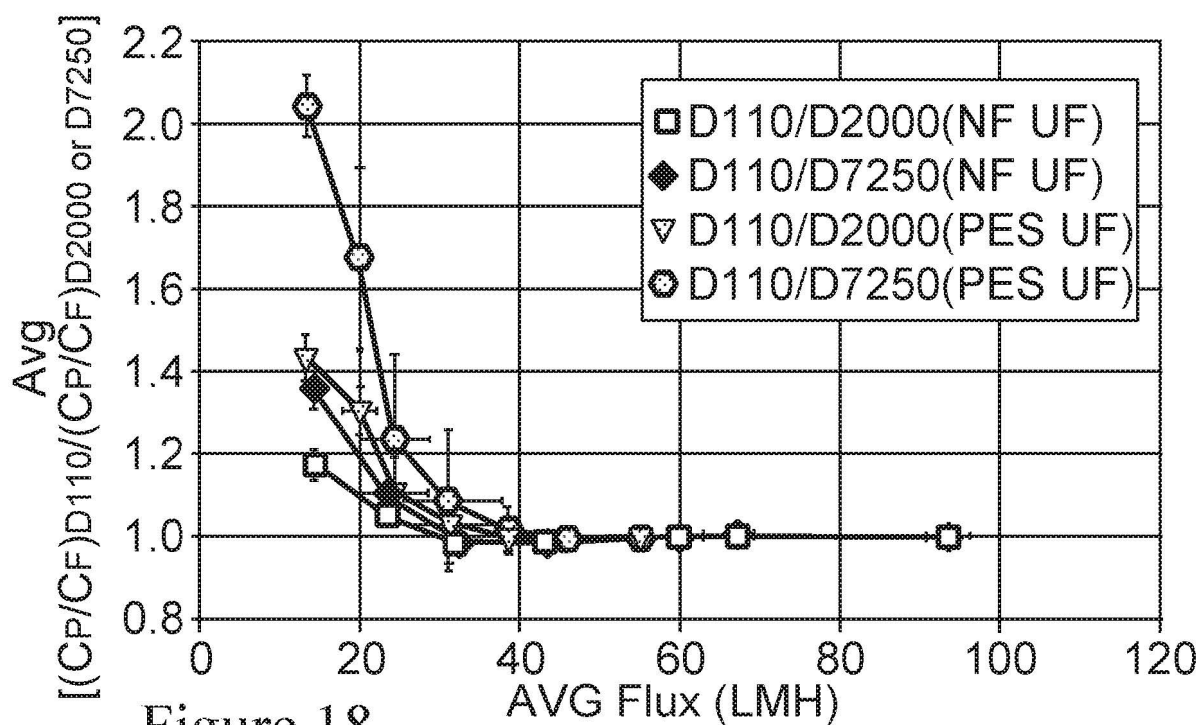


Figure 18
Selectivity D110/D2000 and D110/D7250 vs Flux for NF UF and PES UF through the Flux vs TMP experiment for Feed B (0.844% w/w)

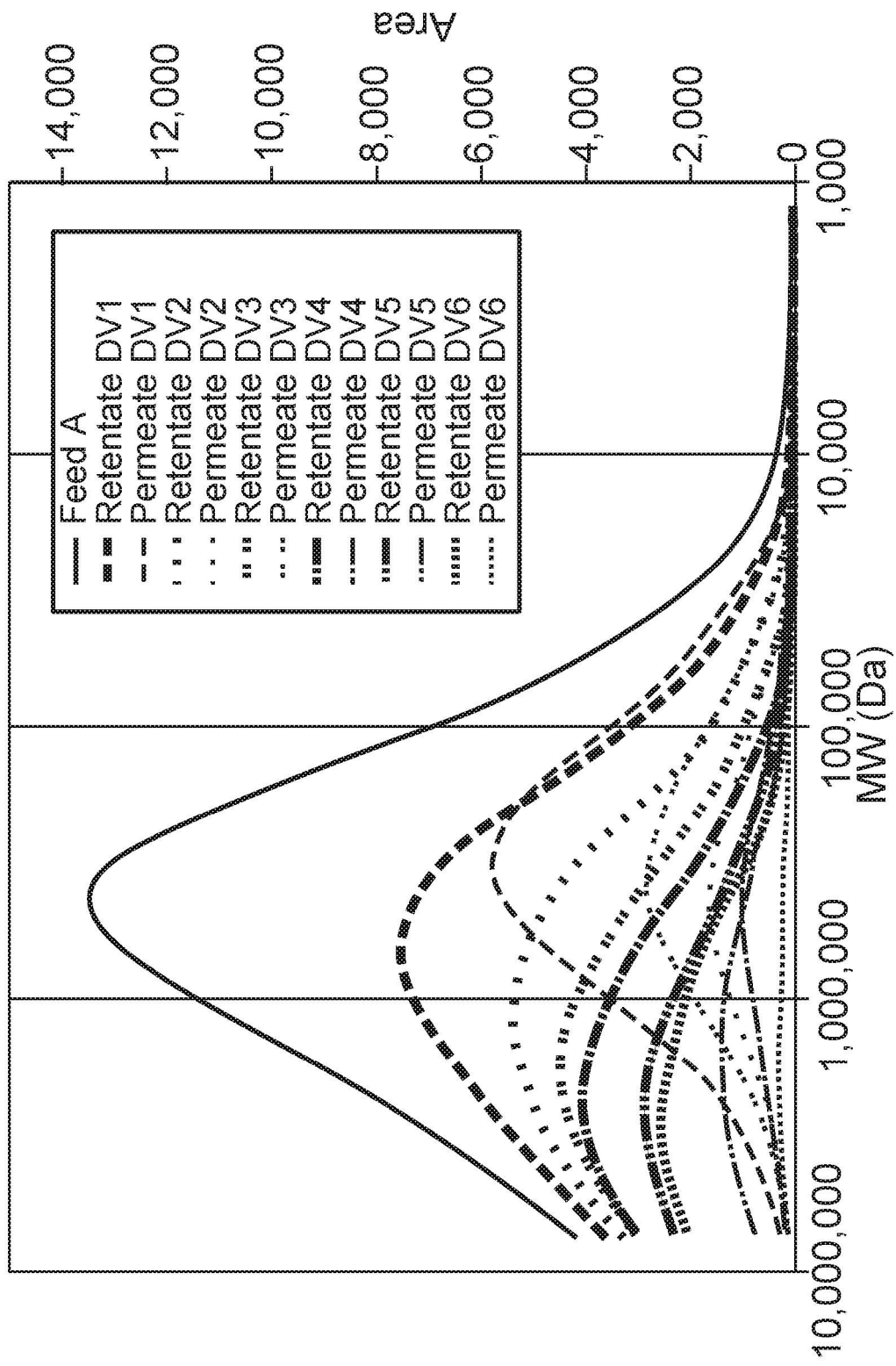


Figure 19

Feed, Retentate, and Permeate Gel permeation chromatograms of Feed A (0.0385% w/w) during Diafiltration using NF UF at 30 LMH and 640 RPM

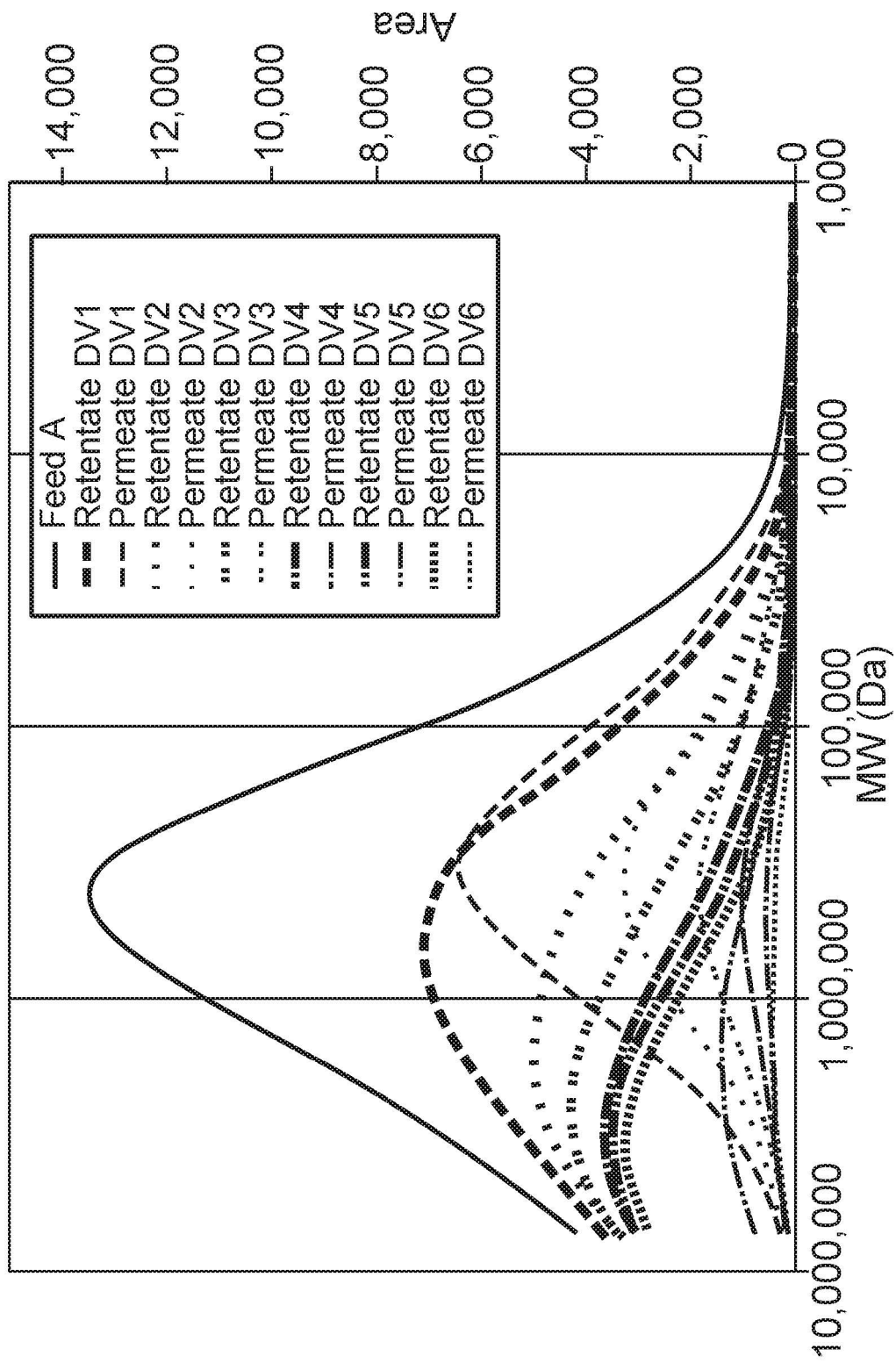


Figure 20

Feed, Retentate, and Permeate Gel permeation chromatograms of Feed A (0.0385% w/w) during Diafiltration using PES UF at 30 LMH and 640 RPM

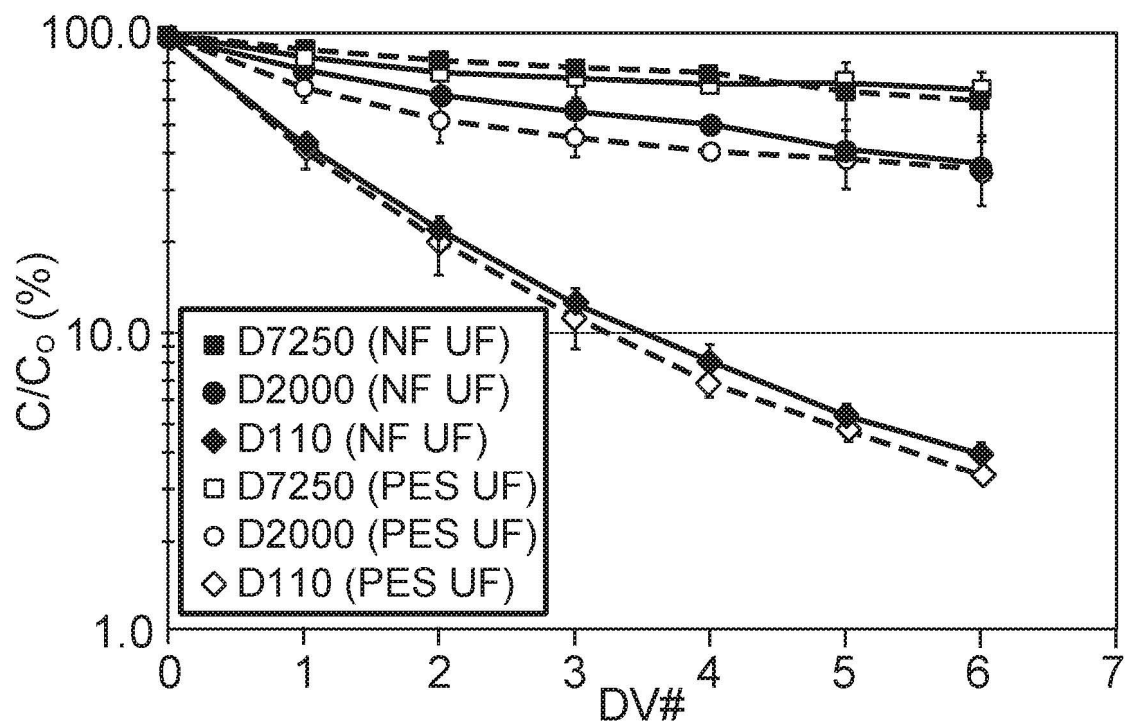


Figure 21

Retentate C/C_0 vs diavolumes of Feed A (0.0385% w/w) for NF UF and PES UF during Diafiltration at 30 LMH and 640 RPM

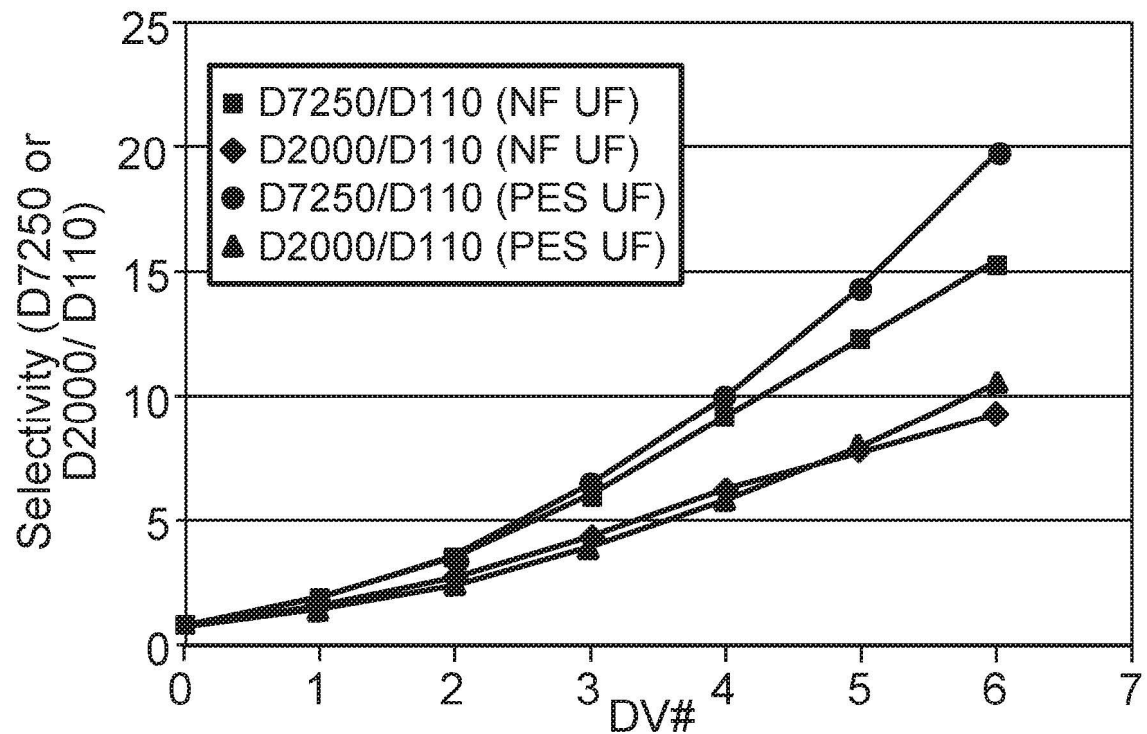


Figure 22

Selectivity in Retentate D7250/D110 and D2000/D110 vs diavolumes for NF UF and PES UF during Diafiltration at 30 LMH and 640 RPM

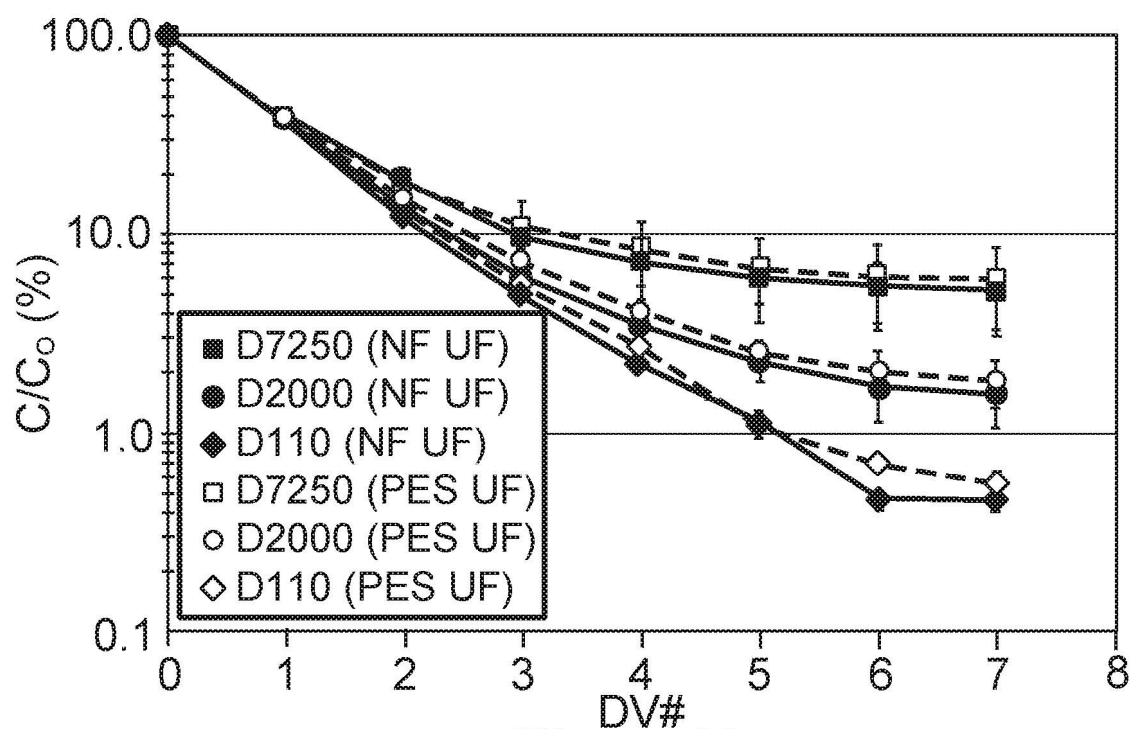


Figure 23

Retentate C/C_0 vs diavolumes of Feed A (0.0385% w/w) for NF UF and PES UF during Diafiltration at 60 LMH and 320 RPM

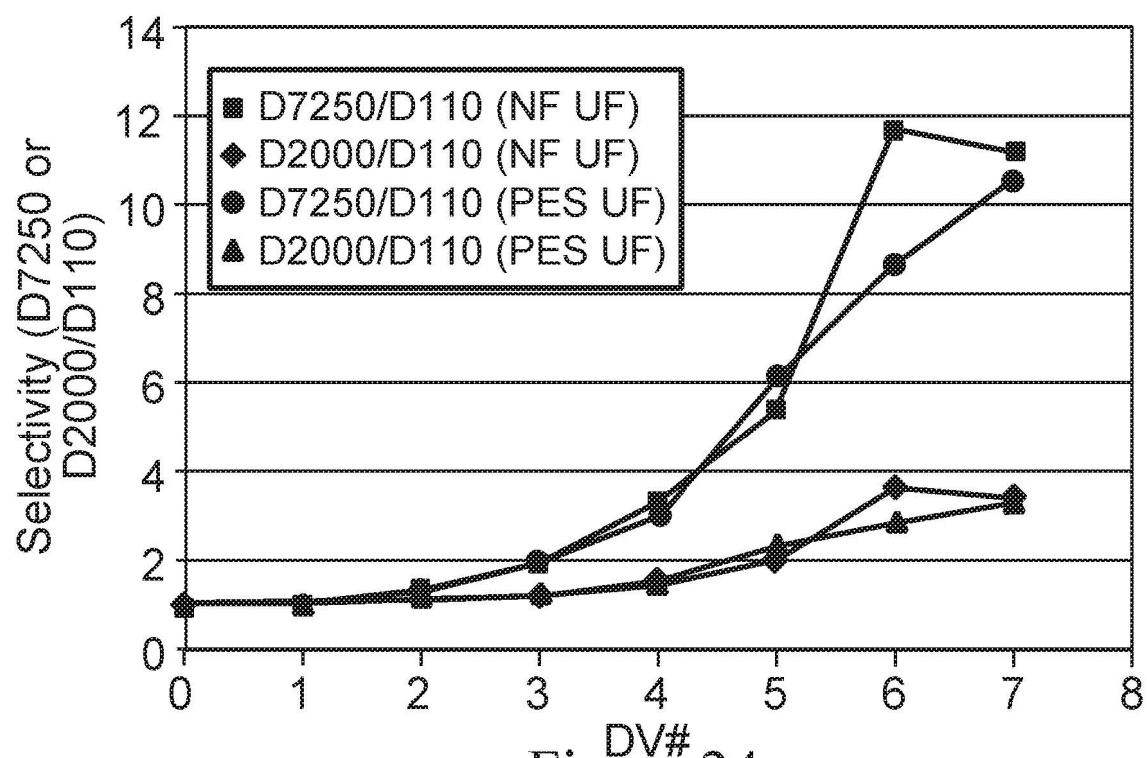


Figure 24

Selectivity in Retentate D7250/D110 and D2000/D110 vs diavolumes for NF UF and PES UF during Diafiltration at 60 LMH and 320 RPM

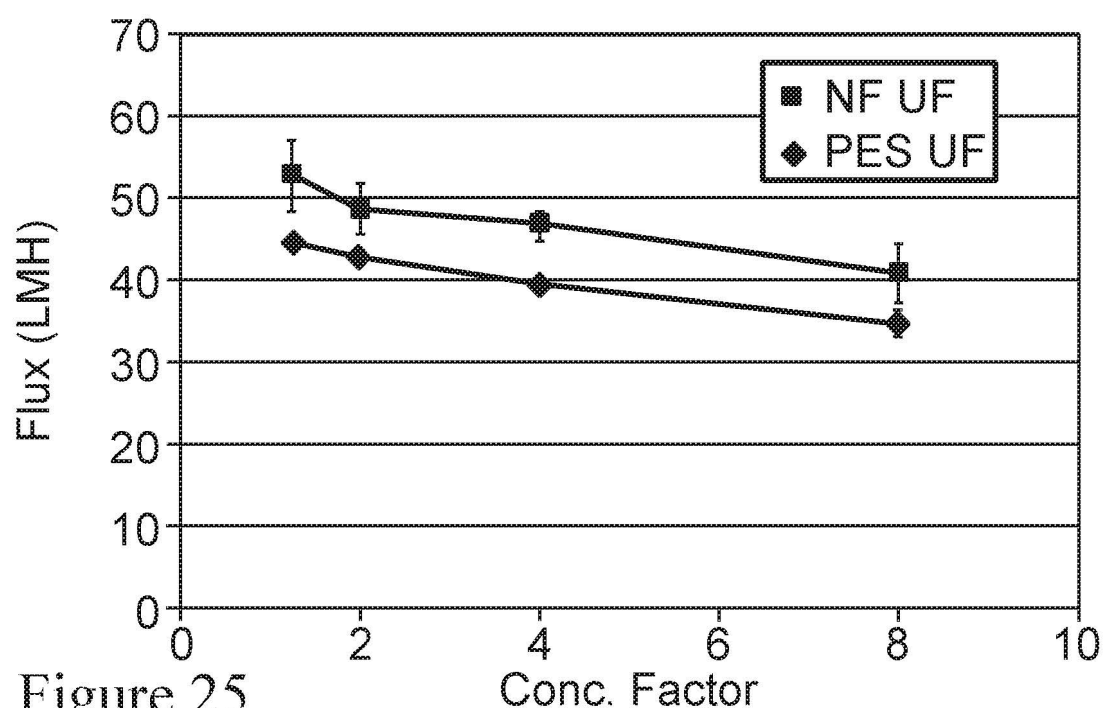


Figure 25
Flux vs Concentration factor for NF UF and PES UF during Ultrafiltration concentration of Feed A (0.0385% w/w) at 0.5 psi constant TMP and 600 RPM

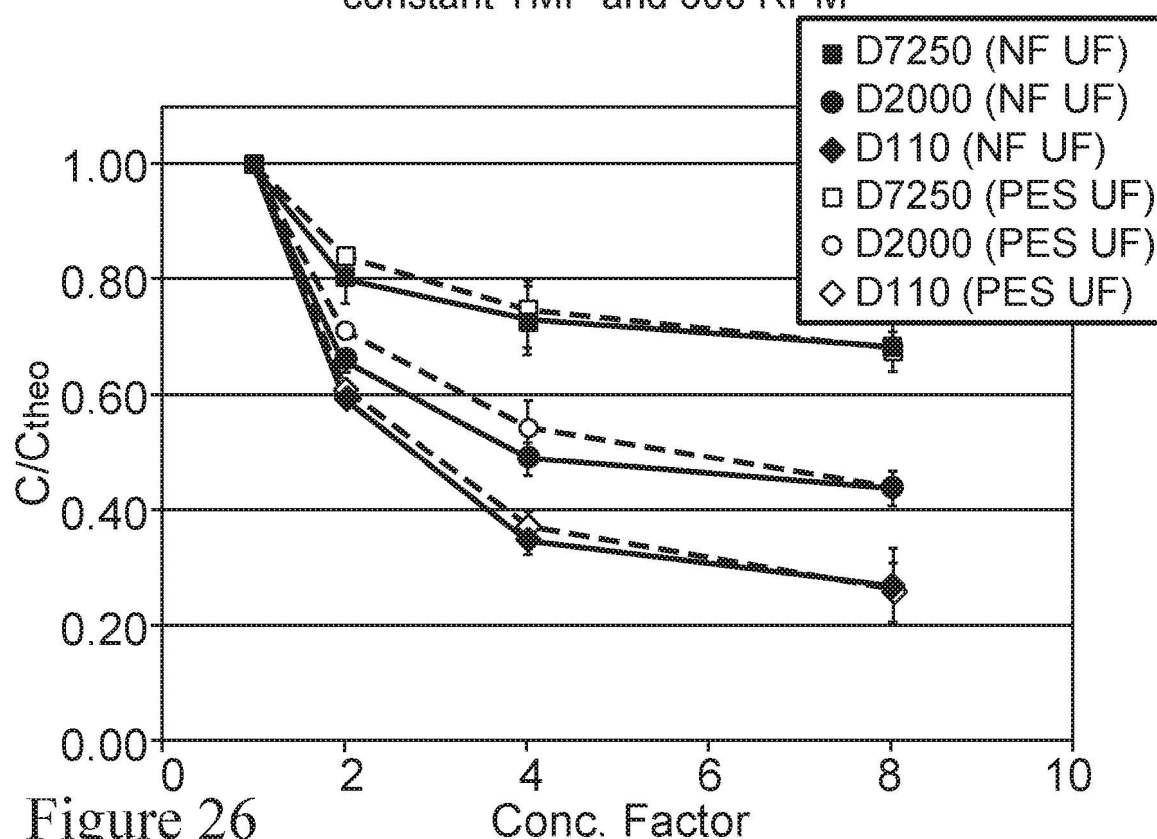


Figure 26
 C/C_{theo} vs Concentration factor for NF UF and PES UF during 2, 4, 8x Ultrafiltration concentration of Feed A (0.0385% w/w) at 0.5 psi constant TMP and 600 RPM

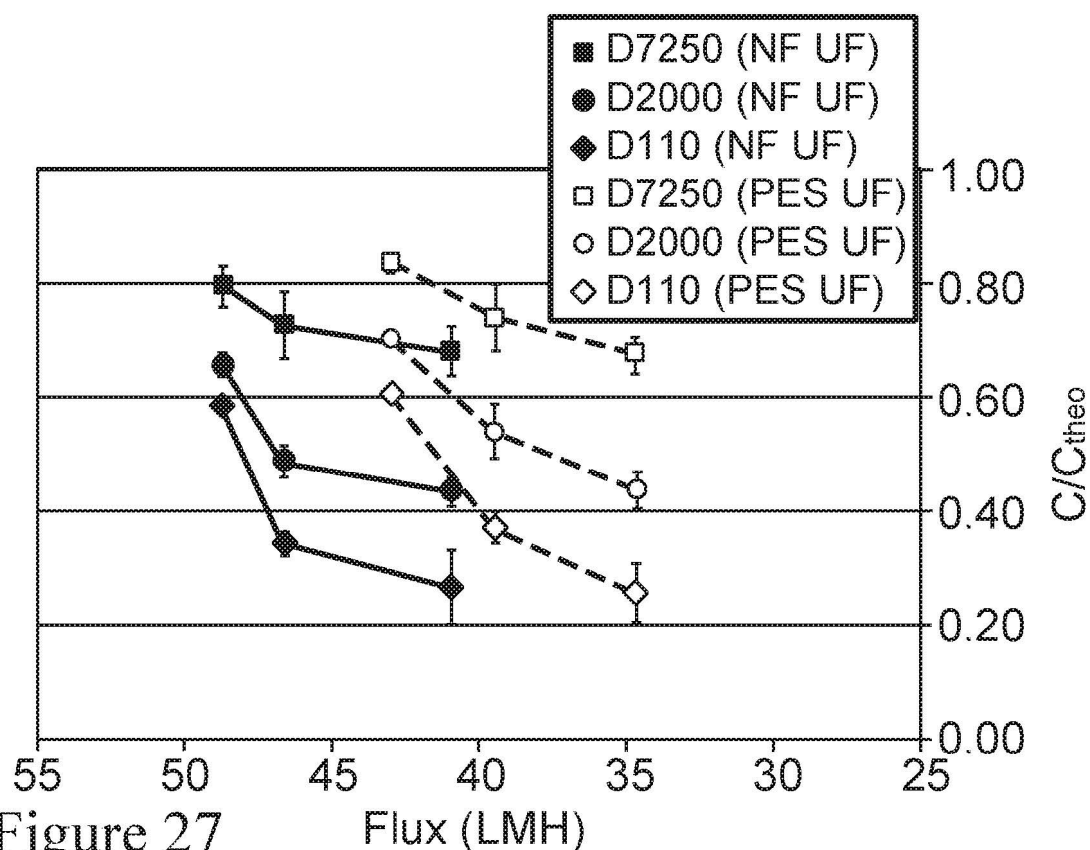


Figure 27 C/C_{theo} vs Flux (LMH)
 C/C_{theo} vs Flux for NF UF and PES UF during 2, 4, 8x (Left to Right) Ultrafiltration concentration of Feed A (0.0385% w/w) at 0.5 psi constant TMP and 600 RPM

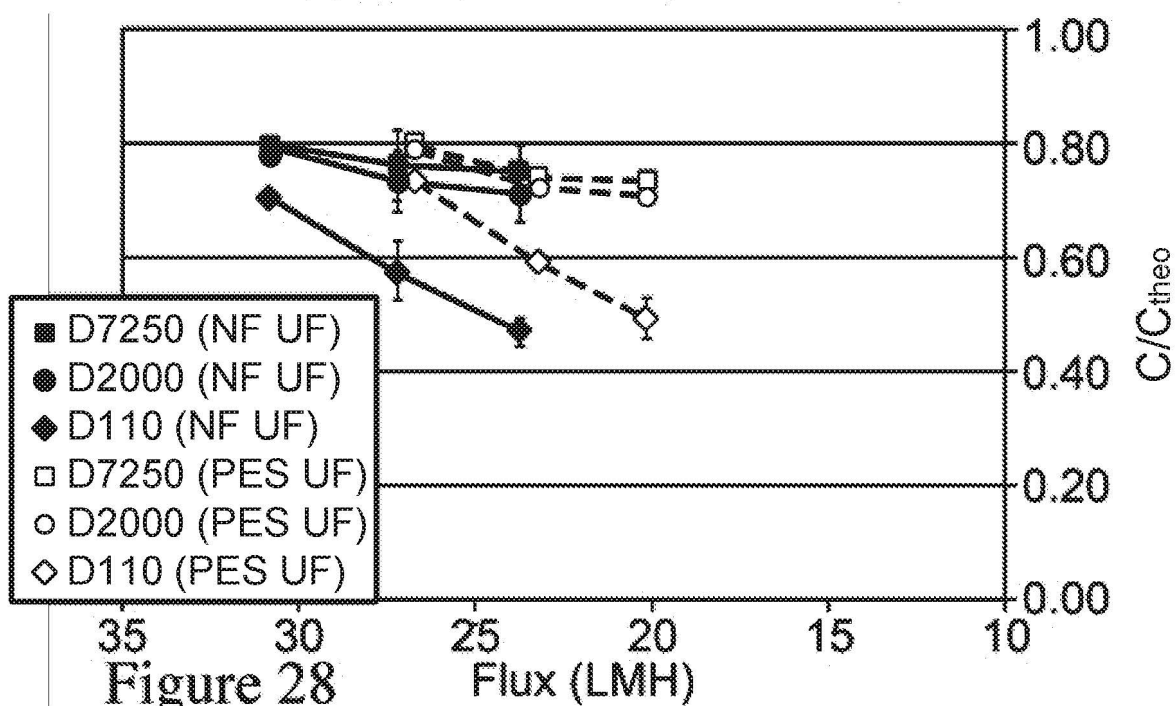


Figure 28 C/C_{theo} vs Flux (LMH)
 C/C_{theo} vs Flux for NF UF and PES UF during 2, 4, 8x (Left to Right) Ultrafiltration concentration of Feed B (0.844% w/w) at 5 psi constant TMP and 600 RPM

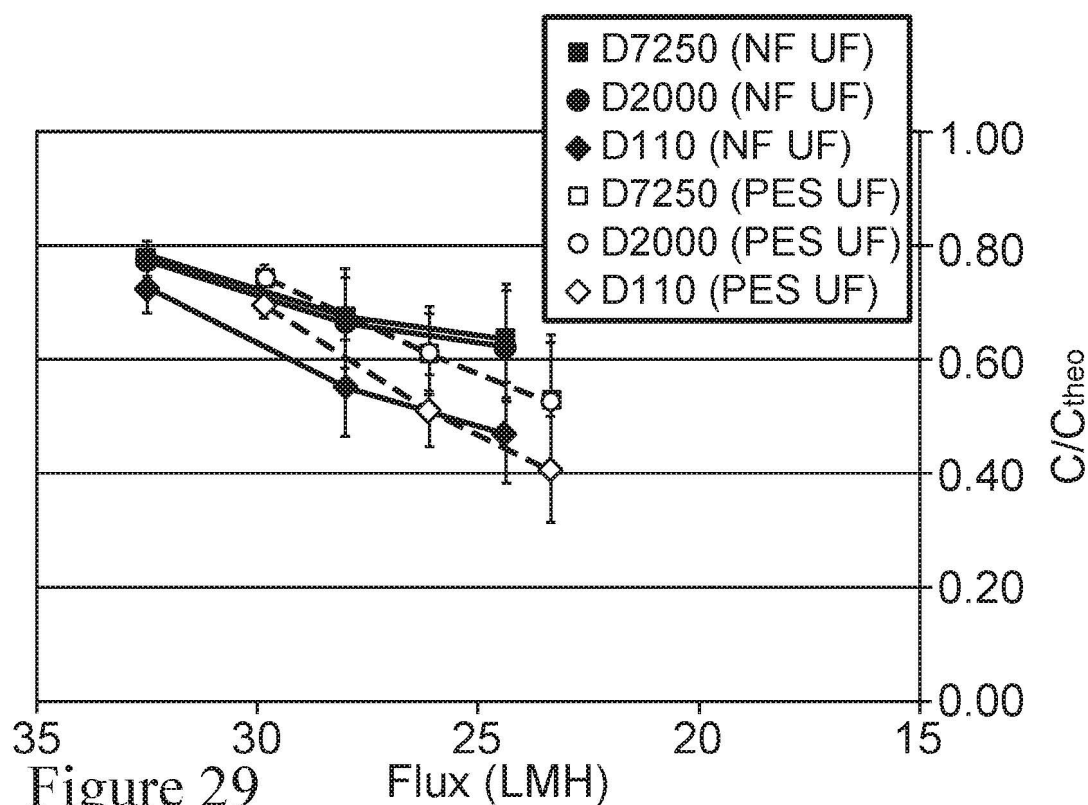


Figure 29 C/C_{theo} vs Flux for NF UF and PES UF during 2, 4, 8x (Left to Right) Ultrafiltration concentration of Feed B (0.844% w/w) at 7 psi constant TMP and 600 RPM

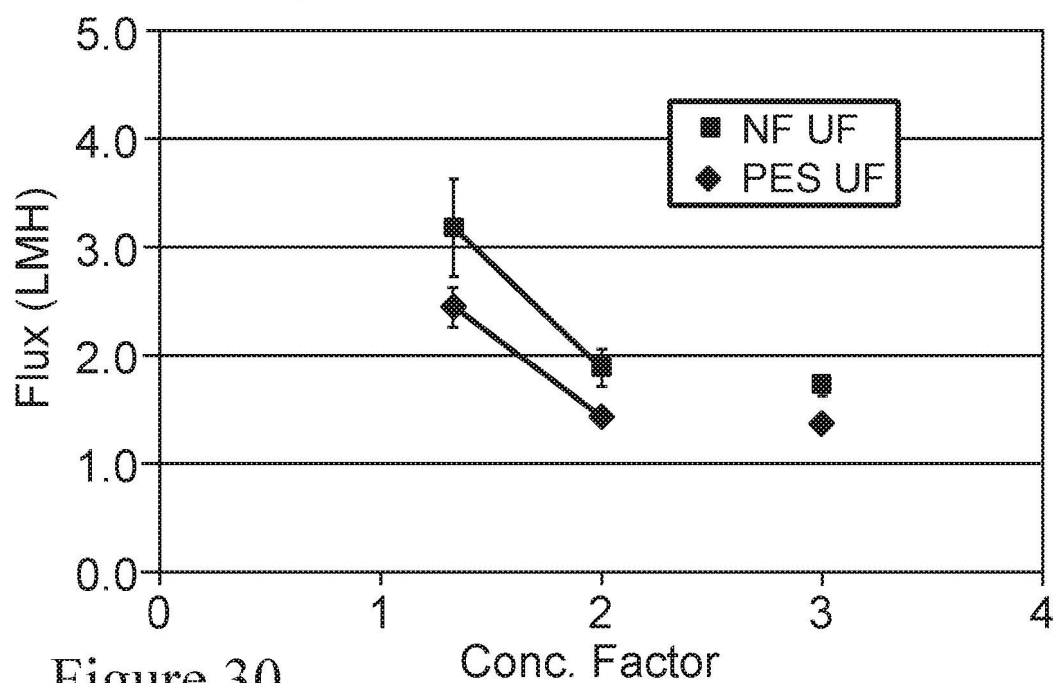


Figure 30 Flux vs Concentration factor for NF UF and PES UF during Ultrafiltration concentration of Feed C (8.44% w/w) at 5 psi constant TMP and 300 RPM. TMP was increased to 12 psi after the 2x concentration point.

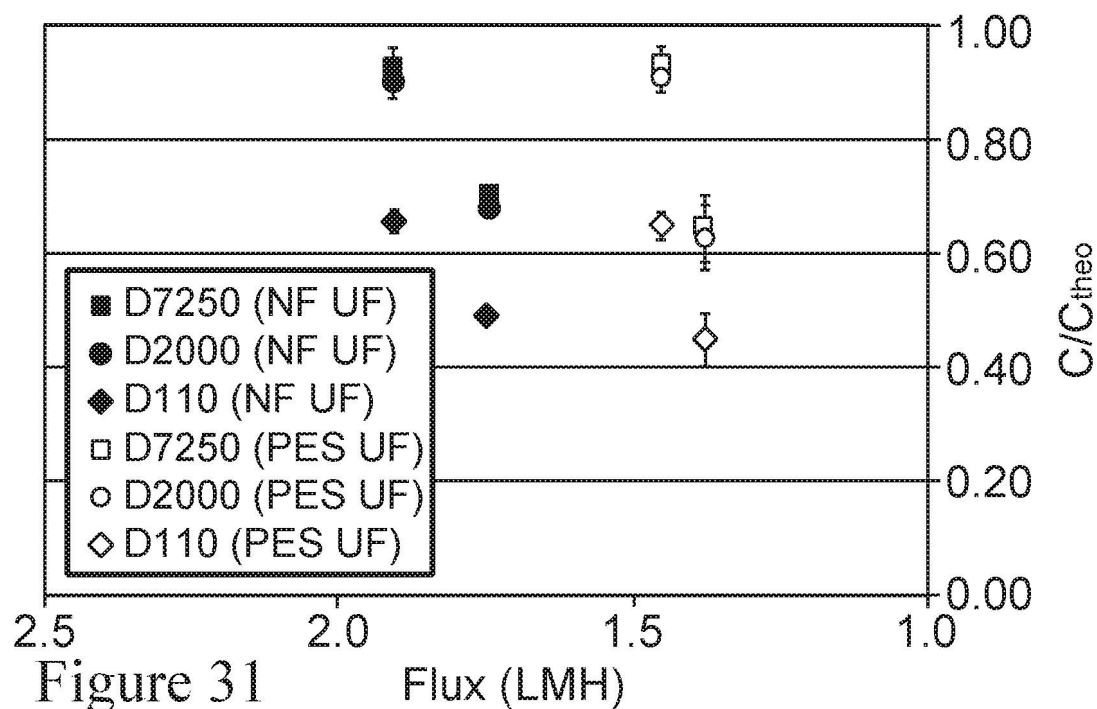


Figure 31

C/C_{theo} vs Flux for NF UF and PES UF during 2 and 3x (Left to Right) Ultrafiltration concentration of Feed C (8.44% w/w) at 5 psi constant TMP and 300 RPM. TMP was increased to 12 psi after the 2x concentration point.

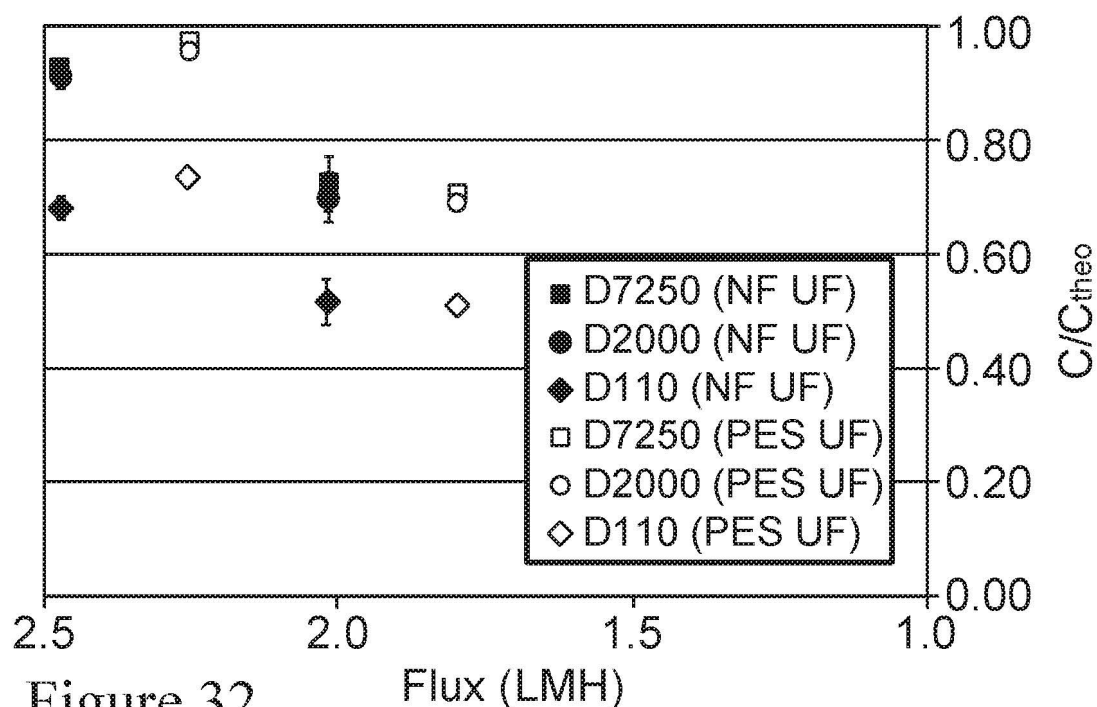


Figure 32

C/C_{theo} vs Flux for NF UF and PES UF during 2 and 3x (Left to Right) Ultrafiltration concentration of Feed C (8.44% w/w) at 7 psi constant TMP and 300 RPM. TMP was increased to 12 psi after the 2x concentration point.

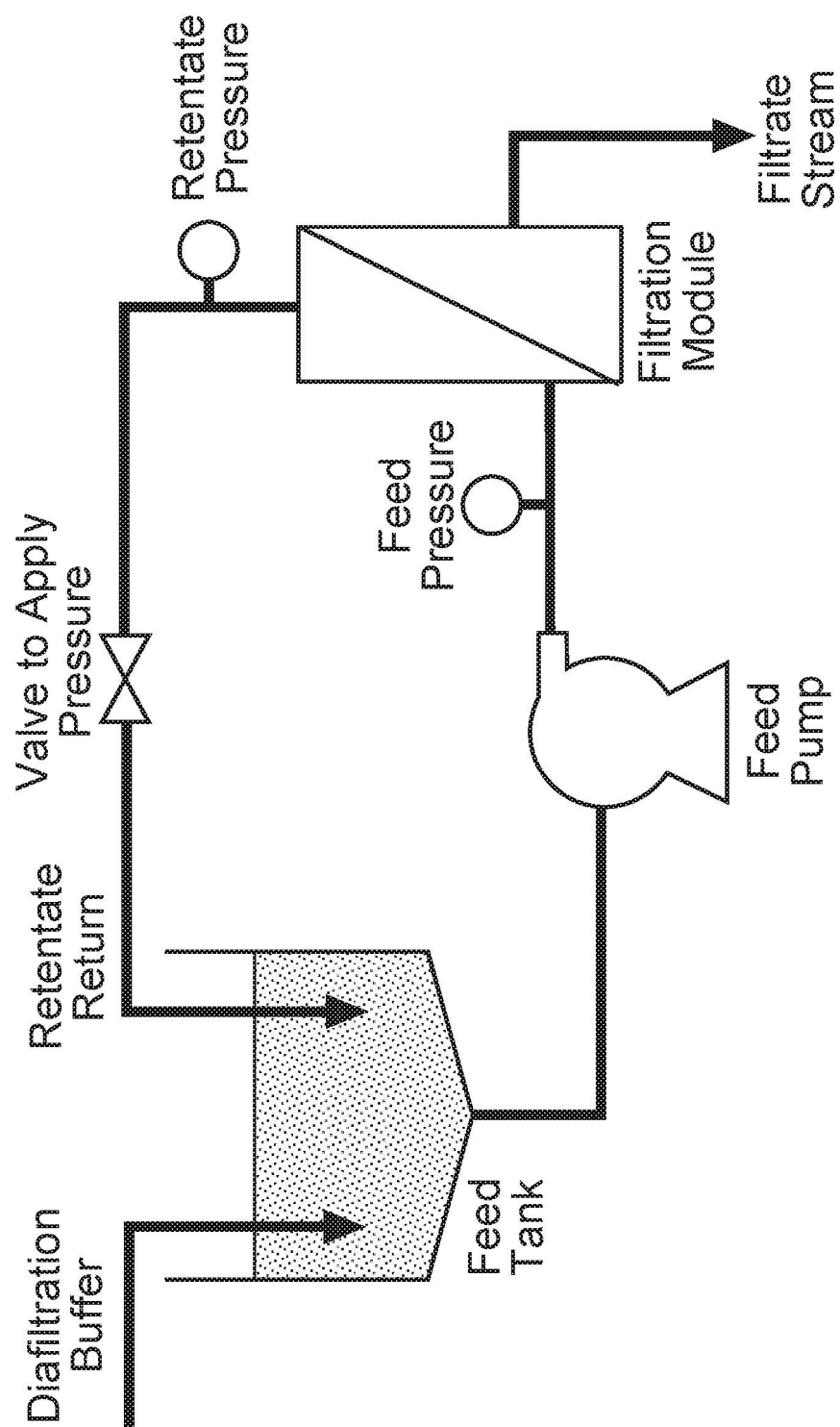


Figure 33