

### Computed error

Table 1. FFV (the fractional free volume) of PVDF Control Membrane and PVDF/SiO<sub>2</sub> Hybrid Membranes of Class I.

Radius of the probe (Å)	0	0.5	1.0	1.4	1.9
PVDF	24.09(0.022)	14.79(0.029)	3.83(0.020)	0.82(0.020)	0.08(0.015)
PVDF1SiO <sub>2</sub> -1	24.15(0.018)	14.79(0.020)	3.57(0.027)	0.64(0.024)	0.03(0.008)
PVDF2SiO <sub>2</sub> -1	24.26(0.022)	15.18(0.017)	4.00(0.023)	0.88(0.021)	0.09(0.006)
PVDF4SiO <sub>2</sub> -1	24.45(0.026)	15.49(0.019)	4.18(0.018)	0.93(0.018)	0.07(0.005)

\* The average deviations are putted in the brackets, which are achieved from last ten balanced configuration.

Table 2. Diffusion Coefficients of Water in PVDF control Membrane and PVDF/SiO<sub>2</sub> Hybrid Membranes of Class I.

Membranes	Diffusion Coefficient
PVDF	1.80(0.9921)
PVDF1SiO <sub>2</sub> -1	2.77(0.9957)
PVDF2SiO <sub>2</sub> -1	2.67(0.9746)
PVDF4SiO <sub>2</sub> -1	3.73(0.9866)

\* The correlation coefficient squares are putted in the bracketeds.

Table 3. FFV of PVDF Control Membrane and PVDF/SiO<sub>2</sub> Hybrid Membranes of Class II.

Radius of the probe (Å)	0	0.5	1.0	1.4	1.9
PVDF	24.09(0.022)	14.79(0.029)	3.83(0.020)	0.82(0.020)	0.08(0.015)
PVDF4SiO <sub>2</sub> -1	24.45(0.026)	15.49(0.019)	4.18(0.019)	0.93(0.018)	0.07(0.005)
PVDF2SiO <sub>2</sub> -2	24.56(0.013)	15.59(0.027)	4.33(0.030)	0.97(0.013)	0.10(0.009)
PVDF1SiO <sub>2</sub> -4	24.56(0.033)	15.68(0.027)	4.44(0.015)	1.12(0.029)	0.16(0.002)

\* The average deviations are putted in the brackets, which are achieved from the last ten balanced configuration.

Table 4. Diffusion Coefficients of Water in PVDF Control Membrane and PVDF/SiO<sub>2</sub> Hybrid Membranes of Class II.

Membranes	Diffusion Coefficient
PVDF	1.80(0.9921)
PVDF4SiO <sub>2</sub> -1	3.73(0.9866)
PVDF2SiO <sub>2</sub> -2	4.50(0.9954)
PVDF1SiO <sub>2</sub> -4	2.23(0.9299)

\* The correlation coefficient squares are putted in the brackets.