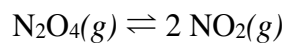


1. Several reaction mixtures containing only N_2O_4 and NO_2 were allowed to come to equilibrium at 25 °C. The equilibrium concentrations of the species in each experiment are as follows:

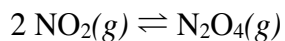
Exp #	$[\text{N}_2\text{O}_4]_{\text{eq}}$ (M)	$[\text{NO}_2]_{\text{eq}}$ (M)
1	0.5307	0.0495
2	1.114	0.0717
3	0.7456	0.0587
4	0.679	0.056

What is the equilibrium constant for the following reaction? Show that the same value for K_{eq} is obtained from each of the experiments.

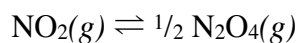


*** Check with Dr. Fantini that you have the right value for question 1 before continuing. ***

2. What is the equilibrium constant for the following equation at 25 °C?



3. What is the equilibrium constant for the following equation at 25 °C?



4. For a mixture of N_2O_4 and NO_2 that is known to be at equilibrium at 25 °C, only the $[\text{NO}_2]$ was measured. What is $[\text{N}_2\text{O}_4]$ at equilibrium if the $[\text{NO}_2] = 0.0098 \text{ M}$?