Chapter 9 - Lecture Worksheet 4

---

1. Summarize the ICE Method

1.

2.

3.

4.

5.

6.

7.

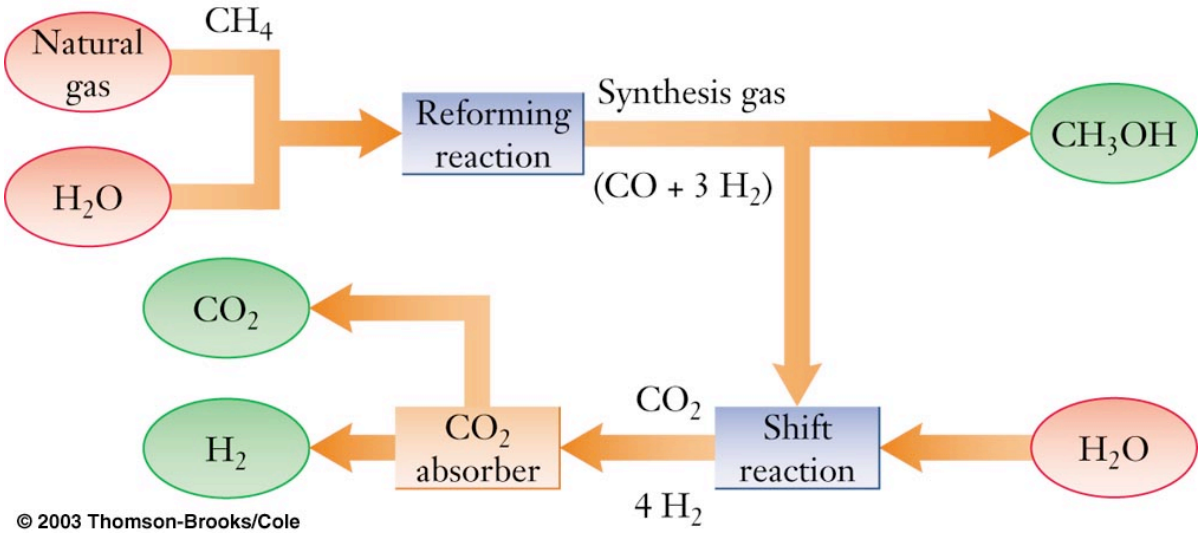
---

2. The equilibrium constant, K_c for the following reaction is 5.9×10^{-3} at 25^0C. Suppose 0.34 moles of $N_2O_4(g)$ are placed in a 1.00 L flask. What is the equilibrium concentration of $NO_2(g)$? **You must use the ICE method to solve this problem.**

$$\mathbf{N_2O_4(g) \rightleftharpoons 2\,NO_2(g)}$$

3. The principle industrial source of hydrogen gas is from natural gas and water via a two step process:

1. Reforming Reaction: $\mathbf{CH_4(g) + H_2O(g) \rightleftharpoons CO(g) + 3\,H_2(g)}$
2. Shift reactions: $\mathbf{CO(g) + H_2O(g) \rightleftharpoons CO_2(g) + H_2(g)}$



The equilibrium constant, K_p for the first reaction is 1.8×10^{-7} at 600 K. Suppose 1.40 atm of $CH_4(g)$ and 2.30 atm of $H_2O(g)$ are placed in a reaction chamber. What will the equilibrium partial pressure of $H_2(g)$ be after the first reaction ?