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BSK1133 PHYSICAL CHEMISTRY

PRACTICE 8

PREPARED BY:

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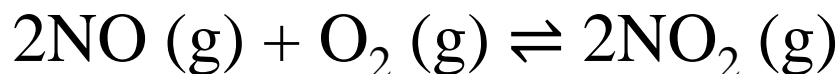
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PRACTICE 8
BY DR. YUEN MEI LIAN

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1. Briefly explain how do you determine a chemical reaction has achieved equilibrium.
2. State the conditions which can change K_c or K_p for a chemical reaction.
3. Find the equilibrium constant, K_p .
(Given $P_{\text{H}_2} = 0.859$ atm and $P_{\text{O}_2} = 1.364$ atm).
$$2\text{H}_2 (\text{g}) + \text{O}_2 (\text{g}) \rightleftharpoons 2\text{H}_2\text{O} (\text{l})$$
4. State the correct equilibrium constant, K_c and K_p , for following reaction at equilibrium?



ANSWER:

1. A chemical reaction is considered has achieved equilibrium when the rates for the forward and reverse reactions are equal and the concentrations of the reactants and products remain constant.

2. Temperature

$$3. \quad \underline{K_p} = \frac{1}{(0.859^2 \times 1.364)} = 0.9936$$

$$4. \quad K_c = \frac{[NO_2]^2}{[NO]^2[O_2]} \quad \underline{K_p} = \frac{P^2_{NO_2}}{P^2_{NO}P_{O_2}}$$

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