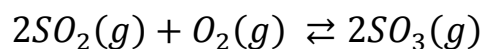


Answer on Question # 68680, Chemistry / General Chemistry

Reaction:



1. If the value of K is 17.3 at 38°C, what is the value of K for the reverse reaction at 38°C?
2. If the equilibrium concentration of sulfur dioxide at 38°C is found to be 0.126 M, and the equilibrium concentration of oxygen is found to be 0.0582 M, what is the equilibrium concentration of sulfur trioxide?

Solution:

1.

$$K_c(\text{forward}) = \frac{1}{K_c(\text{reverse})}$$
$$K_c(\text{reverse}) = \frac{1}{K_c(\text{forward})}$$
$$K_c(\text{reverse}) = \frac{1}{17.3} = 0.0578$$

2.

$$K = \frac{[SO_3]^2}{[SO_2]^2 \times [O_2]} \Rightarrow [SO_3] = \sqrt{K \times [SO_2]^2 \times [O_2]}$$
$$[SO_3] = \sqrt{17.3 \times 0.126^2 \times 0.0582} = 0.126 \text{ (M)}$$

Answer: 0.0578; 0.126 M.