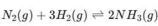


Relación entre Kc y Kp

Ejercicio 1



- Kc = 0.50 M⁻²
- T = 500 K

Paso 1: calcular Δn

$$\Delta n = \text{productos} - \text{reactivos} = 2 - (1 + 3) = 2 - 4 = -2$$

Paso 2: calcular Kp

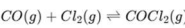
$$K_p = K_c(RT)^{\Delta n} = 0.50 \cdot (0.0821 \cdot 500)^{-2}$$

$$0.0821 \cdot 500 = 41.05$$

$$K_p = 0.50 / (41.05)^2 = 0.50 / 1685.1 \approx 2.97 \times 10^{-4} \text{ atm}^{-2}$$

Respuesta: Kp ≈ 2.97 × 10⁻⁴ atm⁻²

Ejercicio 3



- Kc = 15 M⁻¹
- T = 400 K

Δn:

$$\Delta n = 1 - (1 + 1) = 1 - 2 = -1$$

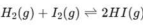
Kp:

$$RT = 0.0821 \cdot 400 = 32.84$$

$$K_p = 15 / 32.84 \approx 0.457 \text{ atm}^{-1}$$

Respuesta: Kp ≈ 0.46 atm⁻¹

Ejercicio 5



- Kp = 1.5 atm
- T = 700 K

Δn:

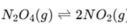
$$\Delta n = 2 - (1 + 1) = 0$$

Kc:

$$K_c = K_p / (RT)^{\Delta n} = K_p / (RT)^0 = K_p = 1.5 \text{ M}^0$$

Respuesta: Kc = 1.5 M⁰

Ejercicio 7



- Kc = 0.01 M
- T = 350 K

Δn:

$$\Delta n = 2 - 1 = 1$$

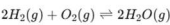
Kp:

$$RT = 0.0821 \cdot 350 = 28.74$$

$$K_p = 0.01 \cdot 28.74 \approx 0.287 \text{ atm}$$

Respuesta: Kp ≈ 0.29 atm

Ejercicio 9



- Kc = 3.0 × 10⁻³ M⁻²
- T = 600 K

Δn:

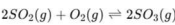
$$\Delta n = 2 - (2 + 1) = -1$$

$$RT = 0.0821 \cdot 600 = 49.26$$

$$K_p = 3.0 \cdot 10^{-3} / 49.26 \approx 6.09 \times 10^{-5} \text{ atm}^{-1}$$

Respuesta: Kp ≈ 6.1 × 10⁻⁵ atm⁻¹

Ejercicio 2



- Kc = 1.2 M⁻²
- T = 700 K

Δn:

$$\Delta n = 2 - (2 + 1) = 2 - 3 = -1$$

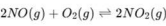
Kp:

$$RT = 0.0821 \cdot 700 = 57.47$$

$$K_p = 1.2 \cdot (57.47)^{-1} = 1.2 / 57.47 \approx 0.0209 \text{ atm}^{-1}$$

Respuesta: Kp ≈ 0.021 atm⁻¹

Ejercicio 4



- Kp = 0.80 atm⁻²
- T = 600 K

Δn:

$$\Delta n = 2 - (2 + 1) = -1$$

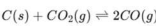
Kc:

$$K_c = K_p / (RT)^{\Delta n} = 0.80 / (0.0821 \cdot 600)^{-1} = 0.80 \cdot (49.26)$$

$$K_c \approx 39.4 \text{ M}^{-2}$$

Respuesta: Kc ≈ 39.4 M⁻²

Ejercicio 6



- Kc = 2.5 M⁻¹
- T = 800 K

Δn:

$$\Delta n = 2 - 1 = 1$$

Kp:

$$RT = 0.0821 \cdot 800 = 65.68$$

$$K_p = 2.5 \cdot 65.68^1 = 2.5 \cdot 65.68 \approx 164.2 \text{ atm}$$

Respuesta: Kp ≈ 164 atm

Ejercicio 8



- Kp = 0.25 atm²
- T = 400 K

Δn:

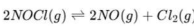
$$\Delta n = 2 - 1 = 1$$

Kc:

$$K_c = K_p / (RT)^{\Delta n} = 0.25 / 32.84 \approx 0.00761 \text{ M}$$

Respuesta: Kc ≈ 7.6 × 10⁻³ M

Ejercicio 10



- Kp = 2.0 atm²
- T = 450 K

Δn:

$$\Delta n = (2 + 1) - 2 = 1$$

$$RT = 0.0821 \cdot 450 = 36.95$$

$$K_c = K_p / (RT)^{\Delta n} = 2.0 / 36.95 \approx 0.0541 \text{ M}$$

Respuesta: Kc ≈ 0.054 M