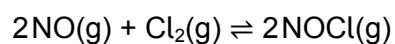


0 5

Nitrogen monoxide reacts with chlorine to form nitrosyl chloride (NOCl).

**0 5 . 1**1.50 mol of NO are mixed with 1.00 mol of Cl₂ and the mixture is left to reach equilibrium at a given temperature.

The equilibrium mixture contains 0.350 mol of NOCl

Calculate the amount, in moles, of NO and of Cl₂ in the equilibrium mixture.**[2 marks]**

Amount of NO _____ mol

Amount of Cl₂ _____ mol**0 5 . 2**Give the expression for the equilibrium constant, K_c , for the reaction between nitrogen monoxide and chlorine to form nitrosyl chloride.**[1 mark]** $K_c =$ 

0 5 . 3

A different equilibrium mixture is prepared in a flask of volume 800 cm^3 at a different temperature.

At equilibrium this mixture contains 0.850 mol of NO and 0.458 mol of Cl_2

For the reaction at this temperature $K_c = 1.32 \times 10^{-2} \text{ mol}^{-1} \text{ dm}^3$

Determine the amount, in moles, of NOCl in this equilibrium mixture.

[4 marks]

Amount of NOCl _____ mol

| |
|---|
| |
| 7 |

Turn over for the next question**Turn over ►**