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AS Chemistry

C10 & C11: Chemical Equilibrium

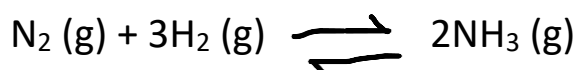
Assignment Questions

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Year 2024

Chemical Equilibrium

Q1: What is dynamic equilibrium? State the conditions under which it can be achieved.

Q2: Ammonia is manufactured from nitrogen and hydrogen:

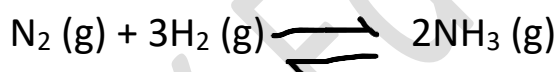


- Describe the effect of pressure on the equilibrium yield of ammonia.
- If the above reaction is exothermic, explain the ideal conditions under which maximum yield of ammonia can be obtained.
- Under the conditions chosen usually 450°C at 250 atmosphere pressure Ammonia is obtained. Explain why pressure chosen may be described as compromise pressure?
- Write an expression for the equilibrium constant, K_c , for these reversible reactions.

Q3: Write an expression for K_p for the following equilibria.



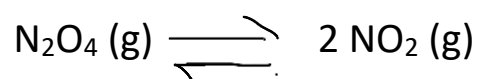
Q4: Nitrogen and Hydrogen react together to form ammonia.



Initially, 3.2 mol of nitrogen and 1.8 mol of hydrogen were sealed together in a flask at 2.5 atm .

- Calculate the mole fraction of each gas
- Calculate the partial pressure of each gas.

Q5: 0.120 mol of N_2O_4 was heated in a sealed 3.00 dm^3 flask. An equilibrium was established which contained 0.045 mol of N_2O_4 .



- Calculate the amount of NO_2 in the equilibrium mixture.
- Calculate the K_c and states its unit if any.
- If ΔH is positive. What will be the effect on K_p if temperature is increased.