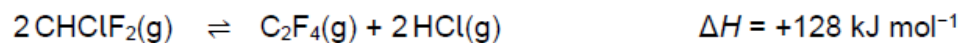


Chemical equilibria, Le Chatelier's principle and K_c – A2 2022 Chemistry P2

1. June/2022/Paper_7405/2/No.2

0 2

Tetrafluoroethene is made from chlorodifluoromethane in this reversible reaction.



A 2.00 mol sample of CHClF₂ is placed in a container of volume 23.2 dm³ and heated. When equilibrium is reached, the mixture contains 0.270 mol of CHClF₂

0 2 . 1

Calculate the amount, in moles, of C₂F₄ and of HCl in the equilibrium mixture.**[2 marks]**Amount of C₂F₄ _____ mol

Amount of HCl _____ mol

0 2 . 2

Give an expression for K_c for this equilibrium.**[1 mark]**K_c

0 2 . 3 Calculate a value for K_c

Give its units.

[3 marks]

K_c _____ Units _____

0 2 . 4 State and explain the effect of using a higher temperature on the equilibrium yield of tetrafluoroethene.

[3 marks]

Effect on yield _____

Explanation _____

0 2 . 5

Chemists provided evidence that was used to support a ban on the use of chlorodifluoromethane as a refrigerant.

Many refrigerators now use pentane as a refrigerant.

State the environmental problem that chlorodifluoromethane can cause.

Give **one** reason why pentane does not cause this problem.

[2 marks]

Environmental problem _____

Reason why pentane does not cause this problem _____
