

Chemical equilibria, Le Chatelier's principle and K_c – AS 2022 Chemistry P21. [June/2022/Paper_7404/2/No.18](#)

The reaction reaches equilibrium in a container of fixed volume.

Which is the expression for K_c for this equilibrium?

[1 mark]

A $K_c = \frac{[\text{CH}_3\text{OH}]}{[\text{CO}] + [\text{H}_2]^2}$

B $K_c = \frac{[\text{CH}_3\text{OH}]}{[\text{CO}] [\text{H}_2]^2}$

C $K_c = \frac{[\text{CO}] + [\text{H}_2]^2}{[\text{CH}_3\text{OH}]}$

D $K_c = \frac{[\text{CO}] [\text{H}_2]^2}{[\text{CH}_3\text{OH}]}$

2. [June/2022/Paper_7404/2/No.19](#)

2.0 mol of carbon monoxide is mixed with 3.0 mol of hydrogen and allowed to reach equilibrium.

The equilibrium mixture contains 0.6 mol of methanol.

What is the total amount, in mol, of gas at equilibrium?

[1 mark]

A 3.2

B 3.8

C 4.4

D 5.0

3. June/2022/Paper_7404/2/No.20

Which change in condition will decrease the equilibrium yield of methanol?

[1 mark]

A Increase the amount of CO in the equilibrium mixture.

B Increase the pressure.

C Increase the surface area of the catalyst.

D Increase the temperature.