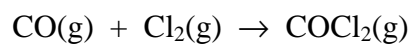


Marks
5

- Phosgene is a toxic gas prepared by the reaction of carbon monoxide with chlorine:



The following data were obtained in a kinetics study of its formation at 150 °C.

Experiment	initial [CO] (M)	initial [Cl ₂] (M)	Initial rate (M s ⁻¹)
1	1.00	0.100	1.29×10^{-29}
2	0.100	0.100	1.33×10^{-30}
3	0.100	1.00	1.30×10^{-29}
4	0.100	0.0100	1.32×10^{-31}

Determine the rate law for the reaction.

Calculate the value of the rate constant at 150 °C.

Answer:

Calculate the rate of appearance of phosgene when [CO] = [Cl₂] = 1.3 M.

Answer: