

Finding the Rate Law with Initial Rates

Consider the reaction $2 \text{ NO} + 2 \text{ H}_2 \longrightarrow \text{N}_2 + 2 \text{ H}_2\text{O}$

Rate = $k[\text{NO}]^m[\text{H}_2]^n$ A complete rate law needs the values of k , m , and n .

Rate data at 350K

exp	[NO] /M	[H ₂] /M	initial rate /Ms ⁻¹
1	0.10	0.10	1.23×10^{-3}
2	0.10	0.20	2.46×10^{-3}
3	0.20	0.10	4.92×10^{-3}