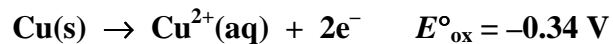


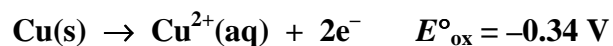
- Explain why copper dissolves in dilute HNO₃, but not in dilute HCl?

Copper does not dissolve in dilute HCl(aq) it is not oxidized to Cu²⁺(aq) under these conditions:



The overall cell potential $E^{\circ} = E^{\circ}_{\text{ox}} + E^{\circ}_{\text{red}} = (-0.34 + 0) = -0.34 \text{ V}$. The cell potential is negative and the reaction is not spontaneous.

Copper does dissolve in dilute HNO₃ due to oxidation by the NO₃⁻ ion:



The overall cell potential $E^{\circ} = E^{\circ}_{\text{ox}} + E^{\circ}_{\text{red}} = (-0.34 + 0.96) = +0.62 \text{ V}$. The cell potential is positive and the reaction is spontaneous.