

Competition Corner: Conditions and Boundaries

g11_u05_w19

Original fictional paper-model challenges. No operation or construction is implied. Use $E = (0.05916/n) \log_{10}(C_{\text{high}}/C_{\text{low}})$, $F = 96\,485 \text{ C mol}^{-1} \text{ e}^{-}$, and 25°C .

Challenge 21. Two fictional two-electron concentration cards have ratios 1000 and 25. Calculate each modeled potential. Find the ratio of the potentials, then explain why that ratio is not the same as the ratio of the concentration ratios.

Challenge 22. A fictional accounting model has $E = 0.0410 \text{ V}$ and transfers 0.0200 mol e^{-} . Calculate EQ after converting the electron amount to charge. A report also lists an energy input of $100. \text{ J}$. What percentage comparison can be calculated, and what system-boundary fact must be stated before calling it an efficiency?