

Competition Corner: Constraint Synthesis

g11_u09_w36

Original fictional capstone-model challenges. No apparatus, procedure, or real-world decision is implied.

Challenge 21. A fictional calibration is $S = 1.50C + 0.20$, valid for 0.00 to 2.00 mg L⁻¹. An unknown has $S = 3.35$. Find the model estimate and classify it as interpolation or extrapolation. Then state two reasons it is not an identity, compliance, or safety conclusion.

Challenge 22. A fictional system has $K = [B]/[A] = 2.00$, $[A] = 0.30$, $[B] = 0.90$ M, and a separate route table with atom economy 80.0% and yield 50.0%. Calculate Q , model direction, and one route metric interpretation. Write a final conclusion that keeps equilibrium and route evidence separate.