

Gibbs Free Energy and Equilibrium Connection

g11_u02_w08

Original fictional data models only; no chemical activity is requested. Preserve units and distinguish tendency from rate or yield claims.

1. State $\Delta G = \Delta H - T\Delta S$.

2. State kelvin requirement.

3. Convert 25°C to K.

4. Use $\Delta H = -20 \text{ kJ}$, $\Delta S = -0.050 \text{ kJ/K}$, $T = 298 \text{ K}$.

5. Interpret sign.

6. Is sign a rate claim?

7. Is sign a yield claim?

8. Find temperature where $\Delta G = 0$ for -30 kJ and -0.100 kJ/K .

9. State unit check.

10. Compare favorable $\Delta H, \Delta S$.

11. Compare unfavorable both.

12. Explain mixed signs.

13. State equilibrium connection qualitatively.

14. Identify model assumption.

15. Explain standard versus actual conditions.

16. A result is $+2.0 \pm 0.5$ kJ. Interpret.

17. Explain why rounding T early matters.

18. Name one missing activity/concentration effect.

19. Distinguish tendency and mechanism.

20. Write a bounded conclusion.
