Enthalpy, Calorimetry, and State Functions

g11_u02_w05

Original fictional paper data only. No calorimetry, mixing, heating, or chemical handling is requested.

1. Define system and surroundings for a supplied model card.

2. State the sign of q_{sys} when a system absorbs energy.

3. If $q_{surr} = +240$ J, calculate q_{sys}.

4. Calculate $q = mc\Delta T$ for 25.0 g, 4.18 $\mathrm{J\,g^{-1}\,{}^{\circ}C^{-1}}$, and 3.00°C.

5. State the sign of item 4 for warming surroundings.

6. A card gives $q_{surr} = -314$ J. Find q_{sys}.

7. Convert 2.50 kJ to J.

8. Convert 850 J to kJ.

9. For 0.0500 mol and $\Delta H = -125$ $\mathrm{kJ\,mol^{-1}}$, calculate ΔH for the amount.

10. Explain why enthalpy is extensive.

11. Double an equation with $\Delta H = +36$ kJ; report new ΔH.

12. Reverse it; report new ΔH.

13. Identify a state function.

14. Explain why path details do not change a state-function difference.

15. A model ends 18.0 kJ lower than it starts. Give ΔH.

16. Compare heat transfer and temperature.

17. State one boundary missing from a cup-style data model.

18. A fictional result is -4.20 kJ with 0.10 kJ uncertainty. Interpret sign and bound.

19. Explain why a measured temperature change alone does not prove reaction mechanism.

20. Write a bounded energy conclusion using one supplied value.