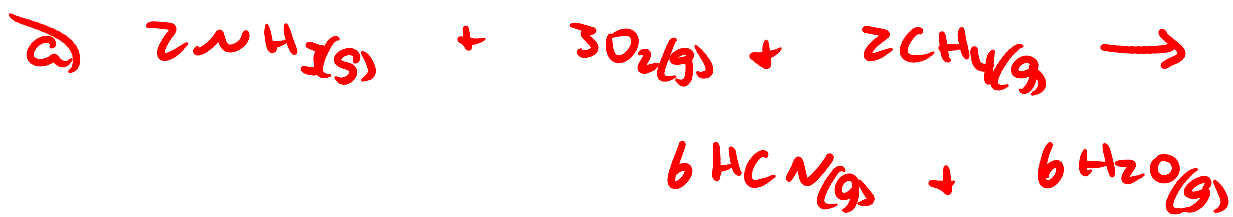


75) the change in enthalpy that accompanies the formation of 1 mole of a compound from its elements, with all substances in their standard states, is the standard enthalpy of formation for a compound



$$\rightarrow) \Delta H^\circ = \sum n \Delta H^\circ_{\text{products}} - \sum n \Delta H^\circ_{\text{reactants}}$$



$$\Delta H^\circ = [2(135) + 6(-242)] - [2(-46) + 2(-75)]$$
$$\Delta H^\circ = -940 \text{ kJ}$$



$$\Delta H^\circ = [3(-1433) + 2(-1267)] - [1(-4126) + 3(-814)]$$
$$\Delta H^\circ = -265 \text{ kJ}$$



$$\Delta H^\circ = [1(-314)] - [1(-46) + 1(-92)]$$
$$\Delta H^\circ = -176 \text{ kJ}$$



$$\Delta H^\circ = \sum n \Delta H_{\text{Fprod}}^\circ - \sum n \Delta H_{\text{Freact}}^\circ$$

$$\Delta H^\circ = [4(90) + 6(-242)] - [4(-46)] = -908 \text{ kJ}$$



$$\Delta H^\circ = [2(34)] - [2(90)] = -112 \text{ kJ}$$

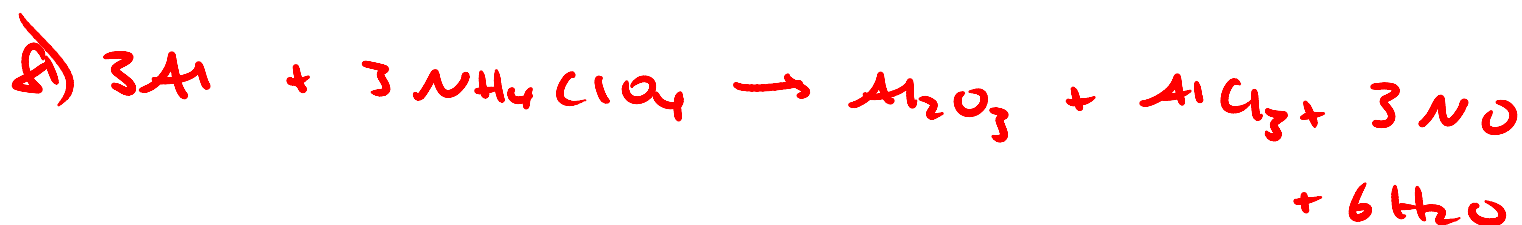


$$\Delta H^\circ = [2(-207) + 1(90)] - [3(34) + 1(-286)]$$

$$\Delta H^\circ = -140. \text{ kJ}$$



* the overall reaction is exothermic
because each step is exothermic



$$\Delta H^\circ = [6(-242) + 3(90) + 1(-704) + 1(-1676)]$$

$$- [3(-295)] = -2677 \text{ kJ}$$



$$\Delta H^\circ = \sum n \Delta H_{\text{F,prod}}^\circ - \sum n \Delta H_{\text{F,react}}^\circ$$

$$-1196 = [6(-27)] - [2(x) + 2(-46)]$$

$$-1196 = -1626 - 2x + 92$$

$$x = \frac{-1626 + 92 + 1196}{2} = -169 \frac{\text{kJ}}{\text{mol}}$$