

$$\Delta H_{rxn}^{\circ} = [2\Delta H_f^{\circ}(NH_3(g)) + 10\Delta H_f^{\circ}(H_2O(l)) + \Delta H_f^{\circ}(BaCl_2(s))] - [\Delta H_f^{\circ}(Ba(OH)_2 \cdot 8H_2O(s)) + 2\Delta H_f^{\circ}(NH_4Cl(s))]$$

$$\Delta H_{rxn}^{\circ} = [2(-46.11kJ/mol) + 10(-285.83kJ/mol) + (-858.6kJ/mol)] - [(-3342.18kJ/mol) + 2(-314.43kJ/mol)]$$

$$\Delta H_{rxn}^{\circ} = 161.9kJ/mol$$