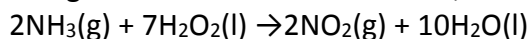
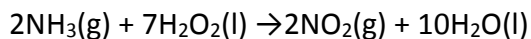


Answer on Question #63408 - Chemistry – General Chemistry

Using standard heats of formation, determine ΔH for the following reaction:



Solution.



$$\Delta H = \Delta H_{\text{products}} - \Delta H_{\text{reactants}}$$

$$\begin{aligned}\Delta H_{298}^0 &= 10 \times \Delta H_{298}^0(\text{H}_2\text{O}_{(\text{l})}) + 2 \times \Delta H_{298}^0(\text{NO}_{2(\text{g})}) - ((7 \times \Delta H_{298}^0(\text{H}_2\text{O}_{2(\text{l})}) + 2 \times \Delta H_{298}^0(\text{NH}_{3(\text{g})})) \\ &= 10 \times (-286.0) + 2 \times 33.18 - (7 \times (-187.6) + 2 \times (-46.11)) = -2860 + 66.36 + 1313.2 + 92.22 = \\ &= -1388.22 \text{ kJ}\end{aligned}$$

Answer: $\Delta H = -1388.22 \text{ kJ}$

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