CHE 141 Lecture 21 Problem Set

Read Section Chapter 13.5

Use this data:

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\begin{align*}
\text{Na(g)} & \rightarrow \text{Na}^+(g) + e^- & \text{IE} = 486 \text{ kJ/mol} \\
\text{Na(s)} & \rightarrow \text{Na(g)} & \text{sublimation energy} = 98 \text{ kJ/mol} \\
\text{l}_2(s) & \rightarrow \text{l}_2(g) & \text{sublimation energy} = 38 \text{ kJ/mol} \\
\text{l}_2(g) & \rightarrow 2\text{l}(g) & \text{bond energy} = 144 \text{ kJ/mol} \\
\text{l}(g) + e^- & \rightarrow \text{l}^-(g) & \text{electron affinity} = -288 \text{ kJ/mol} \\
\text{Na}^+(g) + \text{l}^-(g) & \rightarrow \text{NaI(s)} & \text{lattice energy} = -665 \text{ kJ/mol}
\end{align*}
\]

To calculate the heat of formation for NaI(s).

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\text{Na(s)} + \frac{1}{2} \text{l}_2(s) \rightarrow \text{NaI(s)} \quad \text{enthalpy of formation} = \ ?
\]