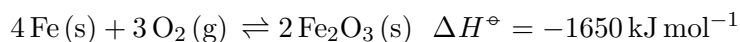


Thermodynamics and Electrochemistry

Wake Up: Free Energy

1. The oxidation of iron is represented in the chemical equation below. Which of the following correctly explains whether or not the reaction is thermodynamically favorable?



- A) There are more particles (including particles in the gas state) in the reactants than in the product, thus $\Delta S < 0$. Because ΔH is large and negative, the reaction will be thermodynamically favorable at low temperatures.
- B) There are more particles (including particles in the gas state) in the reactants than in the product, thus $\Delta S < 0$. Because ΔH is large and negative, the reaction will be not be thermodynamically favorable at any temperature.
- C) There are more particles (including particles in the gas state) in the reactants than in the product, thus $\Delta S > 0$. Because ΔH is large and negative, the reaction will be thermodynamically favorable at all temperatures.
- D) There are more particles (including particles in the gas state) in the reactants than in the product, thus $\Delta S > 0$. Because ΔH is large and negative, the reaction will be not be thermodynamically favorable at any temperature.