

Thermodynamic reaction worksheet

Predict the vales for ΔH , Δn_{gas} , w , ΔS and ΔG . At the least provide a sign, but if you can offer a guess of the magnitude without using a calculator, that is even better.

reaction	ΔH	Δn_{gas}	w	ΔS	ΔG
$\text{CH}_{4(g)} + \text{O}_{2(g)} \rightarrow \text{CO}_{2(g)} + 2\text{H}_2\text{O}_{(g)}$					
$2\text{H}_{2(g)} + \text{O}_{2(g)} \rightarrow 2\text{H}_2\text{O}_{(g)}$					
$2\text{H}_2\text{O}_{(g)} \rightarrow 2\text{H}_{2(g)} + \text{O}_{2(g)}$					
$\text{C}_2\text{H}_5\text{OH}_{(l)} + 3\text{O}_{2(g)} \rightarrow 2\text{CO}_{2(g)} + 3\text{H}_2\text{O}_{(g)}$					
$\text{C}_2\text{H}_5\text{OH}_{(l)} + 3\text{O}_{2(g)} \rightarrow 2\text{CO}_{2(g)} + 3\text{H}_2\text{O}_{(l)}$					
$\text{C}_3\text{H}_{8(g)} + 5\text{O}_{2(g)} \rightarrow 3\text{CO}_{2(g)} + 4\text{H}_2\text{O}_{(g)}$					
$4\text{H}_2\text{O}_{(g)} + 3\text{CO}_{2(g)} \rightarrow \text{C}_3\text{H}_{8(g)} + 5\text{O}_{2(g)}$					
$\text{CCl}_{4(l)} \rightarrow \text{C}_{(s)} + 2\text{Cl}_{2(g)}$					
$\text{Ba}(\text{OH})_2(\text{H}_2\text{O})_{8(s)} + 2\text{NH}_4\text{NO}_{3(s)} \rightarrow \text{Ba}(\text{NO}_3)_2(s) + 2\text{NH}_{3(g)} + 10\text{H}_2\text{O}_{(l)}$					
$3\text{O}_{2(g)} \rightarrow 2\text{O}_{3(g)}$					
$\text{H}_2\text{O}_{(s)} \rightarrow \text{H}_2\text{O}_{(l)}$					
$\text{CO}_{2(g)} \rightarrow \text{CO}_{2(s)}$					
$\text{NH}_{3(g)} + \text{HCl}_{(g)} \rightarrow \text{NH}_4\text{Cl}_{(s)}$					
$2\text{H}_2\text{O}_{2(l)} \rightarrow 2\text{H}_2\text{O}_{(l)} + \text{O}_{2(g)}$					

(You should be able to do this worksheet by the time we finish this chapter (if you really understand the material.)