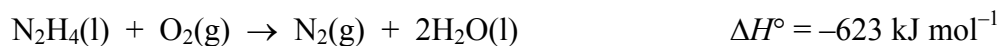


Marks
3

- The combustion of hydrazine, N_2H_4 , with oxygen is described by the following equation:



Given that ΔH°_f of $\text{H}_2\text{O}(\text{l})$ is -286 kJ mol^{-1} , find the standard enthalpy of formation of $\text{N}_2\text{H}_4(\text{l})$.

 $\Delta H^\circ_f =$

The combustion of 1.00 mol of $\text{N}_2\text{H}_4(\text{l})$ can also be accomplished using $\text{N}_2\text{O}_4(\text{l})$ as the oxidant, whereupon 629 kJ of energy is released at standard temperature and pressure. What is the standard enthalpy of formation of $\text{N}_2\text{O}_4(\text{l})$?

 $\Delta H^\circ_f =$