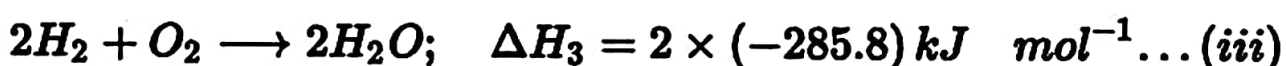
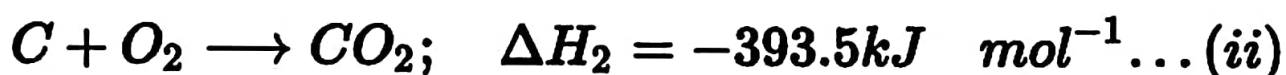


Assignment:

The enthalpy of combustion of methane, graphite and dihydrogen at 298 K are, $-890.3 \text{ kJ mol}^{-1}$, $-393.5 \text{ kJ mol}^{-1}$, and $-285.8 \text{ kJ mol}^{-1}$ respectively. Calculate the enthalpy of formation of $\text{CH}_4(\text{g})$.

SOLUTION



Required reaction



From equation $(ii) - (i) + (iii)$

$$\Delta H_f = (-393.5) + 890.3 + 2(-285.8) = -74 \text{ kJ mol}^{-1}$$