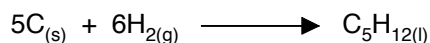


Chemguide – questions

HESS'S LAW AND SIMPLE ENTHALPY CALCULATIONS

1. State Hess's Law.
2. The standard enthalpy of formation of pentane relates to the equation:

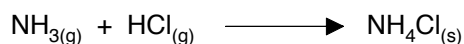


The standard enthalpy changes of combustion for the three substances in the equation are:

$\text{C}_{(s)}$	-394 kJ mol^{-1}
$\text{H}_{2(g)}$	-286 kJ mol^{-1}
$\text{C}_5\text{H}_{12(l)}$	$-3509 \text{ kJ mol}^{-1}$

Calculate the standard enthalpy of formation of pentane.

3. Use the values for standard enthalpy of formation to calculate the standard enthalpy change for the reaction:



$$\Delta H_f(\text{NH}_{3(g)}) = -46.1 \text{ kJ mol}^{-1}$$

$$\Delta H_f(\text{HCl}_{(g)}) = -92.3 \text{ kJ mol}^{-1}$$

$$\Delta H_f(\text{NH}_4\text{Cl}_{(s)}) = -314.4 \text{ kJ mol}^{-1}$$