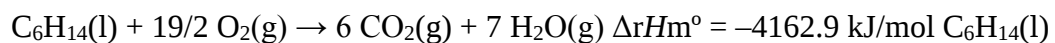


SC 3.

Balanced Reaction Equation



$$\Delta_r H^\circ = -4162.9 \text{ kJ/mol} \times 1 \text{ mol C}_6\text{H}_{14}(\text{l})$$

$$= -4162.9 \text{ kJ}$$

	Reactants		Products		$\Delta_r H^\circ$
Species	$\text{C}_6\text{H}_{14}(\text{l})$	$\text{O}_2(\text{g})$	$\text{CO}_2(\text{g})$	$\text{H}_2\text{O}(\text{g})$	
Coefficient (mol)	1	19/2	6	7	
$\Delta_f H_m^\circ$ (kJ/mol)	?	0	-393.5	-241.8	
$\Sigma n \Delta_f H_m^\circ$	$= [(1 \text{ mol} \times \Delta_f H_m^\circ(\text{hexane})) + (19/2 \text{ mol} \times 0 \text{ kJ/mol})]$ $= 1 \text{ mol} \times \Delta_f H_m^\circ(\text{hexane})$		$= [(6 \text{ mol} \times -393.5 \text{ kJ/mol}) + (7 \text{ mol} \times -241.8 \text{ kJ/mol})]$ $= -4053.6 \text{ kJ}$		-4162.9 kJ

$$-4053.6 \text{ kJ} - (1 \text{ mol} \times \Delta_f H_m^\circ(\text{hexane})) = -4162.9 \text{ kJ}$$

$$\Delta_f H_m^\circ(\text{hexane}) = +109.3 \text{ kJ/mol}$$

The standard molar enthalpy of formation for hexane is +109.3 kJ/mol.