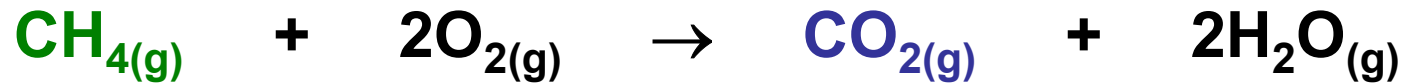


# Example Problem

Calculate the  $\Delta H$  for the following reaction using standard state enthalpy information:



$\text{CH}_{4(g)}$  :

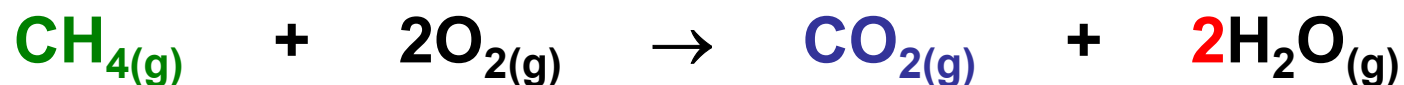


$\text{H}_2\text{O}_{(g)}$  :



# ...an easier way...

Calculate the  $\Delta H$  for the following reaction using standard state enthalpy information:



List all  $\Delta H_f^\circ$  values.

<b>-74.85 kJ</b>	Standard State (0)	<b>-393.5 kJ</b>	<b>-241.8 kJ</b>
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Multiply by coefficients.

<b>1 × (-74.85) kJ</b>		<b>1 × (-393.5) kJ</b>	<b>2 × (-241.8) kJ</b>
<b>-74.85 kJ</b>		<b>-393.5 kJ</b>	<b>-483.6 kJ</b>

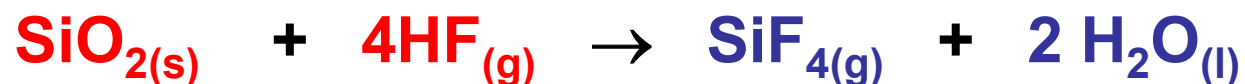
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Calculate "Products – Reactants".

$$\Delta H_f^\circ = \Sigma \Delta H_f^\circ \text{ products} - \Sigma \Delta H_f^\circ \text{ reactants} = [(-393.5) + (-483.6)] - (-74.85)$$
$$\Delta H_f^\circ = -802.25 \text{ kJ}$$


# Example Problem

6.76 a) Calculate  $\Delta H_{\text{rxn}}$  for



*From Appendix B*

**-910.9 kJ**

**-273kJ**

**-1614.9 kJ**

**-285.840 kJ**

$$\Delta H_{\text{rxn}} = [2 \times (-285.840) + 1 \times (-1614.9)] - [1 \times (-910.9) + 4 \times (-273)]$$

$$\Delta H_{\text{rxn}} = -184 \text{ kJ}$$

