



Introducing Thermochemical Equations

Bromfield Honors Chemistry

Thermochemical Equation

- A chemical equation that explicitly includes an energy term

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- $2 \text{H}_2(\text{g}) + \text{O}_2(\text{g}) \rightarrow 2 \text{H}_2\text{O}(\text{g}) + 483.6 \text{ kJ}$

2 ways to write them...

- Exothermic process...

- Energy as PRODUCT



- NEGATIVE ΔH



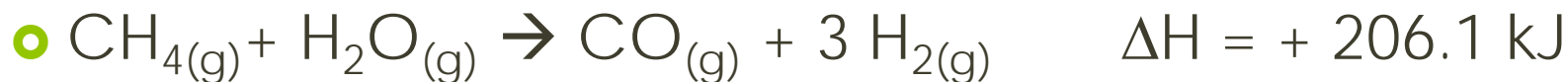
2 ways to write them...

- Endothermic process...

- Energy as REACTANT



- POSITIVE ΔH



CONVERSION FACTORS



- Ex. $\frac{+206.1 \text{ kJ}}{3 \text{ mol H}_2}$ Or $\frac{3 \text{ mol H}_2}{+206.1 \text{ kJ}}$

Sample Problem

- $\text{CH}_4(\text{g}) + \text{H}_2\text{O}(\text{g}) + 206.1 \text{ kJ} \rightarrow \text{CO}(\text{g}) + 3 \text{ H}_2(\text{g})$
- How much energy (in kJ) is required to produce 37.0 g of H_2 according to the reaction above?