

# Bond Energy

↳ energy stored in bonds

↳ energy required to break or create bonds

Enthalpy - a property of a substance that can be used to obtain the amount of energy absorbed or released in a chemical reaction.

$\text{kJ/mol}$  "H"

$$\Delta H = \sum BE_{\text{reactants}} - \sum BE_{\text{products}}$$

The change in enthalpy is equal to all of the Bond Energies in the reactants minus all of the bond energies of products

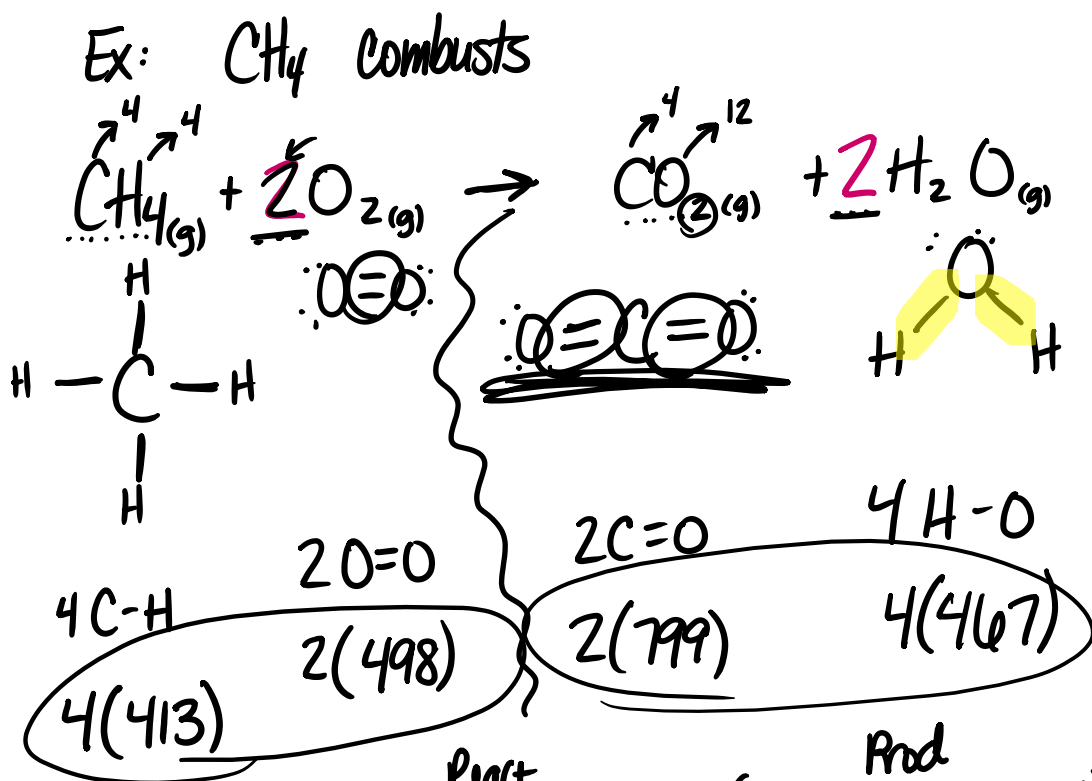
\* When a bond is formed, energy is released  
+ when a bond is broken, energy is absorbed

$-\Delta H = \text{exothermic}$

$+\Delta H = \text{endothermic}$

## Steps!

1. Write out full, balanced equation
2. Draw out the molecules (! First unit stuff!)
3. Count up amount of each type of bond in molecules
4. Apply enthalpy values (from chart)
5. Plug into equation and determine if reaction is endothermic or exothermic



$$\Delta H = \text{React} - \text{Prod}$$

$$\Delta H = (4(413) + 2(498)) - ((2(799) + 4(467)))$$

$$\Delta H = 2648 - 3466$$

$$\Delta H = -818 \text{ kJ/mol}$$

exothermic