

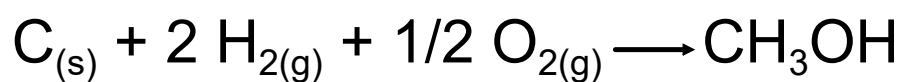
**SUMMARY*****Four Ways of Communicating Energy Changes***

	Exothermic Changes	Endothermic Changes
1. Molar Enthalpy	$\Delta_r H_m < 0$	$\Delta_r H_m > 0$
2. Enthalpy Change	reactants $\rightarrow$ products; $\Delta_r H < 0$	reactants $\rightarrow$ products; $\Delta_r H > 0$
3. Term in a Balanced Equation	reactants $\rightarrow$ products + energy	reactants + energy $\rightarrow$ products
4. Chemical Potential Energy Diagram	$E_p$ (reactants) $>$ $E_p$ (products)	$E_p$ (reactants) $<$ $E_p$ (products)

Molar Enthalpies of reaction:  $\Delta_r H_m$

$$\Delta_f H_m^\circ = -239.2 \text{ kJ/mol}$$

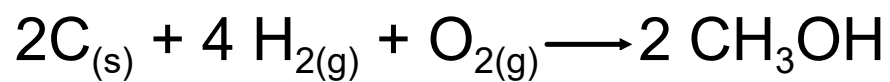
CH<sub>3</sub>OH



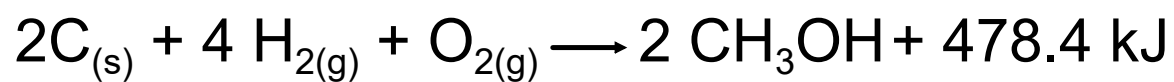
Enthalpies of reaction:  $\Delta_r H$

$$\Delta_f H = -478.4 \text{ kJ}$$

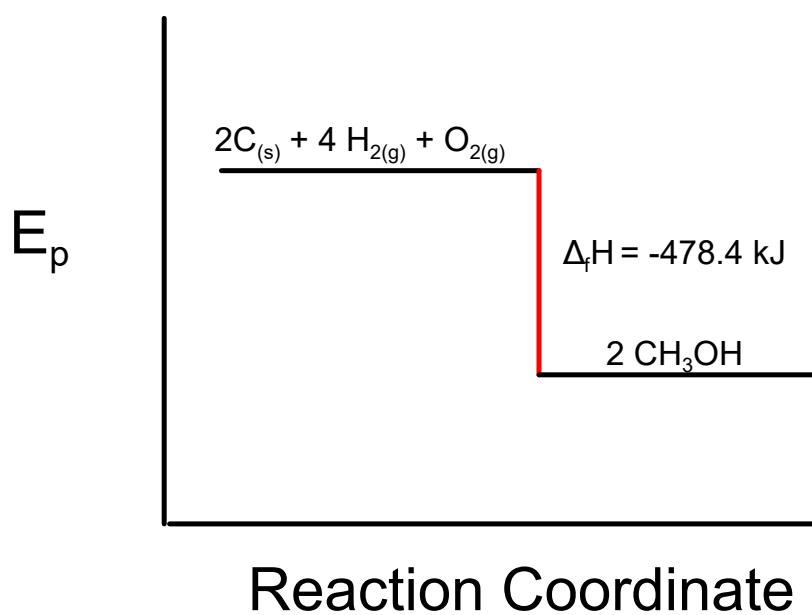
CH<sub>3</sub>OH



## Energy Terms in Balanced Equations



## Chemical Potential Energy Diagrams



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Read P. 495 - 500 P. 501 # 1-7