CONCEPT: ENTHALPY

□ Bond dissociation energies describe the strength of chemical bonds. They can be determined experimentally.

- **Enthalpy** ΔH° is the sum of bond dissociation energies for the reaction.

_____ = _____ bonds = *Exothermic* _____ = _____ bonds = *Endothermic*

Bond Dissociation Energies (ΔH°) of Common Bonds

Bond	kJ/mol
H — OH	498
H — H	436
H — Br	368
H — I	297

Bond	kJ/mol
H_3C — H	436
H_3C — OH	381
H_3C — Br	293
H_3C — I	234

Bond	kJ/mol
H_3C — CH_3	436
HO — OH	213
Br — Br	192
I — I	151

EXAMPLE: Predict the sign and magnitude of ΔH^o for the following reaction. Give your answer in units of kilojoules per mole, and identify whether the reaction is expected to be endothermic or exothermic.

PRACTICE: Predict the sign and magnitude of ΔH^o for the following reaction. Give your answer in units of kilojoules per mole, and identify whether the reaction is expected to be endothermic or exothermic.