

Energetics Calculations

Chemistry

The three routes to an enthalpy change.

Method and the relationship used.

Method	Formula
Bond enthalpies	$\Delta H = \text{bonds broken} - \text{bonds made}$
Formation data	$\Delta H = \sum \Delta H_f \text{ products} - \sum \Delta H_f \text{ reactants}$
Combustion data	$\Delta H = \sum \Delta H_c \text{ reactants} - \sum \Delta H_c \text{ products}$
Experimental	$q = mc\Delta T$, then $\Delta H = -q/n$

Bond enthalpy values are averages across many compounds, so calculations using them are approximate by nature.