

# Heat of combustion of some hydrocarbon compounds

The plot below shows that heat of combustion of hydrocarbons, on a per-carbon-atom basis, is roughly linear with the charge on carbon in each hydrocarbon compound. Not surprisingly, more reduced carbon packs more energy when com-

busted. Extrapolation of the trend shown in the main plot to a charge of 4+ for CO<sub>2</sub> (fully oxidized carbon) reassuringly leads to a heat of combustion near zero, as is shown in the inset, further supporting the relationship between charge and energy of combustion.

One practical implication of this plot is that, if we combust hydrocarbons as an energy source and thereby produce the greenhouse gas CO<sub>2</sub>, methane is the least-CO<sub>2</sub>-producing hydrocarbon combustible to yield a given quantity of energy.

