Jan Kowalski <jkowalski@chem.utoronto.ca>
Tue 6/13, 2:58 PM
Student <student@canscimagazine.ca>

Good day. Based on the planned content of your article, the attached should be a good primer on the basic thermodynamics you require. Drop me an email next week and we'll set a date to go out to lunch. I've been working on an experiment which might have a place in your December issue.

Cheers.

P.S.
You will likely need data from the CRC Handbook of Chemistry and Physics

Jan Kowalski
Lash Miller Chemical Laboratories
80 St. George Street
Toronto, On. M56 3H6
*phone: 787-978-4973*
fax: 787-978-1647

Hess' Law

Hess' law states that the change in enthalpy for a chemical reaction is the algebraic sum of the enthalpy changes for the set of reactions that algebraically adds to give the reaction in question.

In a formation reaction a chemical species is formed from its constituent elements in their standard states. The enthalpy change for this reaction is the heat of formation of that chemical species. The change in enthalpy for any reaction is then expressible as an algebraic combination of the heats of formation of the chemical species involved since the formation reactions will add algebraically to give the overall reaction:

$$\Delta H° = \sum \Delta H°_{f,products} - \sum \Delta H°_{f,reactants}$$

Gasoline
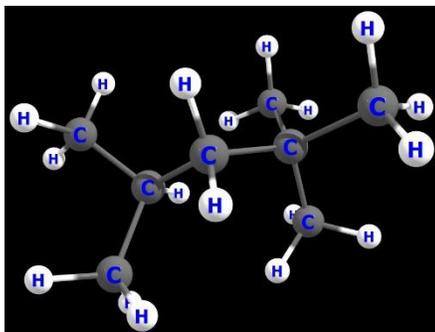
Gasoline is a mixture of various additives and hydrocarbons, consisting mainly of alkanes three to twelve carbons in size. The heat of combustion of gasoline is the driving force behind the internal combustion engine. Gasoline may be approximated as isooctane, otherwise known as 2,2,4-trimethylpentane.

(Image created with ChemCraft)