

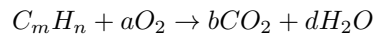
JQ.2.16

September 12, 2014

(2.16) Determine the heat of combustion of toluene and express it in proper thermodynamic form. The heat of formation is 11.95 kcal/mole.

This is essentially the same type of analysis as problem 2.8.

Step 1: Balance the chemical reaction using elemental balances:



Find the stoichiometric coefficients a, b, & d.

Step 2: Use equation 2.25 to express the heat of combustion in terms of the heats of formation

$$\Delta \tilde{h}_c = \left(\sum_i \nu_i \Delta \tilde{h}_{f,i}^o \right)_{React} - \left(\sum_j \nu_j \Delta \tilde{h}_{f,j}^o \right)_{Prod}$$

In [] :