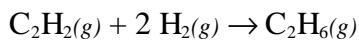


## 6 • Energy & Chemical Thermodynamics

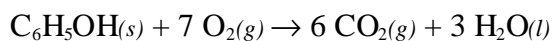
### PRACTICE TEST



Information about the substances involved in the reaction represented above is summarized in the following tables.

Substance	$\Delta H_f^\circ$ (kJ/mol)
$\text{C}_2\text{H}_2(g)$	226.7
$\text{C}_2\text{H}_6(g)$	-84.7

- (a) Write the equation for the heat of formation of  $\text{C}_2\text{H}_6(g)$
- (b) Use the above information to determine the enthalpy of reaction for the equation given.



When a 2.000-gram sample of pure phenol,  $\text{C}_6\text{H}_5\text{OH}(s)$ , is completely burned according to the equation above, 64.98 kilojoules of heat is released. Use the information in the table below to answer the questions that follow.

Substance	Standard Heat of Formation, $\Delta H_f^\circ$ ; at 25°C (kJ/mol)
$\text{CO}_2(g)$	-393.5
$\text{H}_2\text{O}(l)$	-285.85
$\text{C}_6\text{H}_5\text{OH}(s)$	?

- (a) Calculate the **molar** heat of combustion of phenol in kilojoules per mole at 25°C.
- (b) Calculate the standard heat of formation,  $\Delta H_f^\circ$ , of phenol in kilojoules per mole at 25°C.