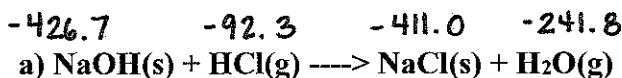


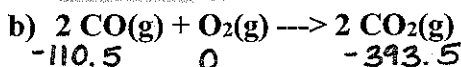
Heat of Formation Worksheet

Use a standard enthalpies of formation table to determine the change in enthalpy for each of these reactions.



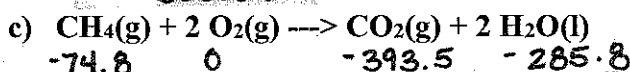
$$\Delta H = [-411.0 + -241.8] - [-426.7 + (-92.3)]$$

$$= -133.8 \text{ kJ}$$



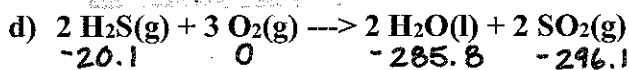
$$\Delta H = [2 \cdot -393.5] - [2 \cdot -110.5]$$

$$= -566.0 \text{ kJ}$$

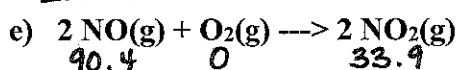


$$\Delta H = [(-393.5) + (2 \cdot -285.8)] - [(-74.8)]$$

$$= -890.3 \text{ kJ}$$



$$\Delta H = [2 \cdot -285.8] + [2 \cdot -296.1] - [2 \cdot -20.1] = -1123.6 \text{ kJ}$$



$$\Delta H = [2 \cdot 33.9] - [2 \cdot 90.4] = -113.0 \text{ kJ}$$

Compound	ΔH_f (kJ/mol)	Compound	ΔH_f (kJ/mol)
$\text{CH}_4\text{(g)}$	-74.8	HCl(g)	-92.3
$\text{CO}_2\text{(g)}$	-393.5	$\text{H}_2\text{O(g)}$	-241.8
NaCl(s)	-411.0	$\text{SO}_2\text{(g)}$	-296.1
$\text{H}_2\text{O(l)}$	-285.8	$\text{NH}_4\text{Cl(s)}$	-315.4
$\text{H}_2\text{S(g)}$	-20.1	NO(g)	+90.4
$\text{H}_2\text{SO}_4\text{(l)}$	-811.3	$\text{NO}_2\text{(g)}$	+33.9
$\text{MgSO}_4\text{(s)}$	-1278.2	$\text{SnCl}_4\text{(l)}$	-545.2
MnO(s)	-384.9	SnO(s)	-286.2
$\text{MnO}_2\text{(s)}$	-519.7	$\text{SnO}_2\text{(s)}$	-580.7
NaCl(s)	-411.0	$\text{SO}_2\text{(g)}$	-296.1
NaF(s)	-569.0	$\text{SO}_3\text{(g)}$	-395.2
NaOH(s)	-426.7	ZnO(s)	-348.0
$\text{NH}_3\text{(g)}$	-46.2	ZnS(s)	-202.9

Book Problems: 55, 57, 59, 60, 61, 62, you will need to use the ΔH values on the table in the back of the text.