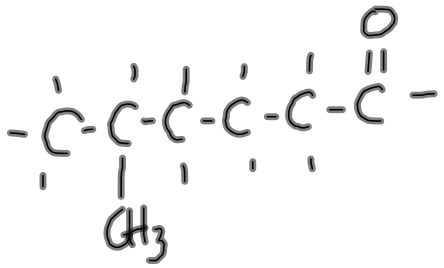
Midterm

5-methylhexanal



$H_2 \rightarrow 2.02 g/mol$

$\Delta H_s = -q$

$nH_s = -vC\Delta T$

$L \left(\frac{kJ}{L \cdot °C}\right)$

$\left(\frac{m}{85}\right)$

Homework

① $CH_3OH_{(l)} + \frac{3}{2}O_{2(g)} \rightarrow CO_{2(g)} + 2H_2O_{(g)}$

$$\Delta H_r = \sum nH_{fp} - \sum nH_{fr}$$

$$\Delta H_r = \left[(1\,mol)\left(-393.5\,\frac{kJ}{mol}\right) + (2\,mol)\left(-241.8\,\frac{kJ}{mol}\right)\right] - \left[(1\,mol)\left(-239.1\,\frac{kJ}{mol}\right) + \left(\frac{3}{2}\,mol\right)\left(0\,\frac{kJ}{mol}\right)\right]$$

$$\Delta H_r = (-877.1\,kJ) - (-239.1\,kJ)$$

$$\Delta H_r = -638\,kJ$$

$$\Delta H_r = nH_r$$

$$H_r = \frac{\Delta H_r}{n} = \frac{-638\,kJ}{1\,mol} = -638\,kJ/mol$$

Thermal Stability

Thermal Stability - the tendency of a compound to resist decomposition when heated.

- the more endothermic the simple decomposition (sd), the more stable the compound.

Ex. $H^{o}_{(sd)}$ = + 280.7 kJ/mol
SnO

$H^{o}_{(sd)}$ = + 577.6 kJ/mol
SnO_2

Therefore is more stable.

*Normally not given the H_{sd}, but given the H_f

Which is more stable, ammonia or butane?

Worksheet