Vecka 13 Lektion 3

Uppgift B1

$Molvolym = 24.5\ dm^3/mol$

$Volymmol = \frac{1}{Molvolym} = 0.040816\ mol/dm^3$

$n = \frac{m}{M} \ \rightarrow \ m = n * M$

$C = \frac{n}{V} \ \rightarrow \ n = C * V$

c) i. $X \ + \ O_2 \ \rightarrow \ CO_2 \ + \ H_2O$

$m(X) = 9.70\ g$
$m(H_2O) = 9.01\ g$
$V(CO_2) = 12.3\ dm^3$
$M(H_2O) = 2 * 1 + 16 = 18$

$n(H_2O) = \frac{9.01}{18} = 0.50056\ mol$

$n(H)_{(innuti\ X)} \approx 1\ mol$

$n(CO_2) = 0.040816 * 12.3 = 0.502\ mol$

molförhållande i X:

$n(H) : n(C)$
$1.0010 : 0.5020$

$m(H)_{(innuti\ X)} = n(H) * M(H)$
$m(H)_{(innuti\ X)} = 1.0010 * 1 = 1\ g$

$m(C)_{(innuti\ X)} = n(C) * M(C)$
$m(C)_{(innuti\ X)} = 0.5020 * 12 = 6\ g$

$m(O)_{(innuti\ X)} = n(O) * M(O)$

$$\left\langle \begin{array}{l} n(O)_{(innuti\ X)} = \frac{m(O)}{M(O)} \\ m(O)_{(innuti\ X)} = m(X) - (m(C) + m(H)) \\ m(O)_{(innuti\ X)} = 9.7 - (6 + 1) = 2.7\ g \end{array} \right\rangle$$

$n(O)_{(innuti\ X)} = \frac{2.7}{16} = 0.16875\ mol$

molförhållande i X (revision 2):

$n(H) : n(C) : n(O)$
$1.0010 : 0.5020 : 0.16875$

$X = C_{0.5}H_1O_{0.17}$

Vi vill ha en kemisk formel med heltal, formeln ovan är inte så användbar.

$X \ + \ O_2 \ \rightarrow \ CO_2 \ + \ H_2O$

$M(X) = 58.1\ g/mol$

$16 * x * 0.16875 + x * 1 * 1 + x * 0.5 * 12 = 58.1$
$x = 6$

C_3H_6O

$\frac{0.5}{0.16875} = 2.963$

$\frac{1}{0.16875} = 5.926$

$\frac{0.16875}{0.16875} = 1$