Percent Composition Worksheet

Find the percent compositions of all of the elements in the following compounds:

1) $CuBr_2$ Assume a 1 mol sample of $CuBr_2$

$M_{CuBr_2} = \underset{1(63.546)}{Cu} + \underset{2(79.964)}{Br}$
$= 223.474\ g/mol$

$\% Cu = \frac{M_{Cu}}{M_{CuBr_2}} \times 100$
$= \frac{63.546\ g}{223.474\ g} \times 100$
$\doteq 28.44\%\ Cu$

$\% Br = \frac{M_{Br}}{M_{CuBr_2}}$
$= \frac{2(79.964)}{223.474}$
$= 71.56\%$

Cu: 28.44 %
Br: 71.56 %

---

2) NaOH

$M_{NaOH} = \underset{1(22.990)}{Na} + \underset{1(15.999)}{O} + \underset{1(1.0079)}{H}$
$\doteq 40.0\ g/mol$

$\% Na = \frac{M_{Na}}{M_{NaOH}} \times 100$
$= \frac{22.990}{40} \times 100$
$= 57.48\%\ Na$

$\% O = \frac{M_O}{M_{NaOH}} \times 100$
$= \frac{15.999}{40} \times 100$
$\doteq 40.00\%\ O$

$\% H = \frac{M_H}{M_{NaOH}} \times 100$
$= \frac{1.0079}{40} \times 100$
$= 2.52\%\ H$

Na: 57.48 %
O: 40.00 %
H: 2.52 %

---

3) $(NH_4)_2S$

$M_{(NH_4)_2S} = \underset{2(14.007)}{N} + \underset{8(1.0079)}{H} + \underset{1(32.065)}{S}$
$\doteq 68.142\ g/mol$

$\% N = \frac{M_N}{M_{(NH_4)_2S}} \times 100$
$= \frac{28.014}{68.142} \times 100$
$= 41.11\%\ N$

$\% H = \frac{M_H}{M_{(NH_4)_2S}} \times 100$
$= \frac{8.063}{68.142} \times 100$
$= 11.83\%\ H$

$\% S = \frac{M_S}{M_{(NH_4)_2S}} \times 100$
$= \frac{32.065}{68.142} \times 100$
$= 47.06\%\ S$

N: 41.11 %
H: 11.83 %
S: 47.06 %

---

4) N_2S_2

$M_{N_2S_2} = \underset{2(14.007)}{N} + \underset{2(32.065)}{S}$
$= 92.14\ g/mol$

$\% N = \frac{M_N}{M_{N_2S_2}} \times 100$
$= \frac{2(14.007)}{92.14} \times 100$
$= 30.40\%\ N$

$\% S = \frac{M_S}{M_{N_2S_2}} \times 100$
$= \frac{2(32.065)}{92.14} \times 100$
$= 69.60\%\ S$

N: 30.40 %
S: 69.60 %

© 2002 Cavalcade Publishing – All Rights Reserved