Empirical Formula of Cu_xCl_y

NEXT: LAB → Reactivity of Metals

(a) Empirical Formula Determination (Mole Ratios)

$Mg + O_2 \rightarrow Mg_xO_y$

$Mg = 0.353\,g$

$Mg_xO_y = 0.585\,g$

$0.353\,g\,Mg \times \frac{1\,mol\,Mg}{24.3\,g\,Mg} = 1.45\times10^{-2}\,mol\,Mg$

$(0.585 - 0.353)\,g\,O \times \frac{1\,mol\,O}{16\,g\,O} = 1.45\times10^{-2}\,mol\,O$

$\frac{1.45\times10^{-2}\,mol\,Mg}{1.45\times10^{-2}\,mol\,Mg} = 1 \qquad \frac{1.45\times10^{-2}\,mol\,Mg}{1.45\times10^{-2}\,mol\,O} = 1$ ← smallest value.

$x = 1 \quad y = 1$

$\text{Percent yield Cu} = \frac{\text{Actual Yield Cu}}{\text{Theo. Yield Cu}} \times 100$

$\text{Theo. yield Cu} = \underline{\quad\square\quad}\,g\,Zn \times \frac{1\,mol\,Zn}{65.39\,g\,Zn} \cdot \frac{1\,mol\,Cu}{1\,mol\,Zn} \cdot \frac{63.55\,g\,Cu}{1\,mol\,Cu} = \square\,g\,Cu$

- slip Zn in Cu_xCl_y sln.
- scrape off Cu from Zn with glass rod, carefully with no spills.
- Take plastic coating off.
- Setup filter + flask + buchner funnel, + aspirator.
- Cu_xCl_y [ ] =
- Reaction flask over white paper.
- Discard Cu in container, Zn sln in sinks, solid Zn in container