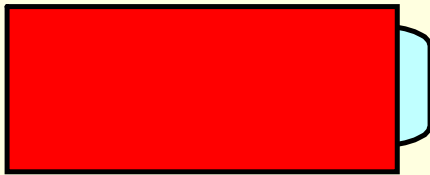# Percent Composition based on mass
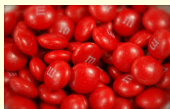
Nov 3-2:24 PM

Percent Composition based on mass

Finding Percents

To find the percent composition of red M&M's
in a bag of 200 M&M's,
if there are 26 red, you would use this formula.

So, in the M&M's problem:

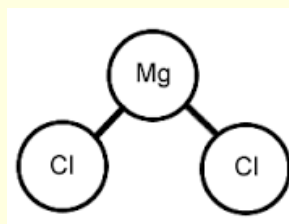OBJ: Student will be able to calculate the percent composition of an atom based on atomic mass.

Percent composition by mass

Find the percent composition by mass of magnesium in $MgCl_2$.

 Mass of Mg in the compound x 100 = **Percent Composition**
Total Mass of $MgCl_2$ Compound

- use periodic table for masses
- round to nearest 0.5

Mass of Mg:

Mass of $MgCl_2$:
    Mg
    Cl

$$\frac{24}{95} \quad x \ 100 = \qquad lg$$

Find the percent compositions of Cl in $MgCl_2$.

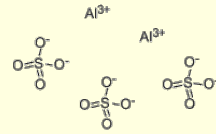$$\frac{71}{95} \quad x \ 100 =$$

All percentages should total 100

$$\begin{array}{r} 25.3 \ \% \ Mg \\ +74.7 \ \% \ Cl \\ \hline 100 \ \% \end{array}$$

Nov 3-2:04 PM

3

OBJ: Student will be able to calculate the percent composition of an atom based on atomic mass.

Percent composition by atomic mass

Find the percent composition by mass of Al in $Al_2(SO_4)_3$

part Mass of Al:

whole Total Mass of $Al_2(SO_4)_3$:

Al
S
O

$$\frac{54}{342} \times 100 =$$

Find the percent composition by mass of oxygen?

$$\frac{192}{342} \times 100 = 56.1\% \ O$$

% composition of S?

$$\frac{96}{342} \times 100 = 28.1\% \ S$$

All percentages should total 100:

```
 15.8 % Al
 28.1 % S
+56.1 % O
100.0 % total
```

If I have 100 grams of $Al_2(SO_4)_3$, how much (mass) is Al?

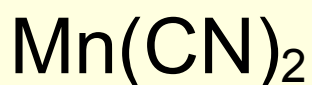$$\frac{15.8\%}{100\%} = \frac{x}{100g} \qquad x =$$

If I have 200 grams of $Al_2(SO_4)_3$, how much (mass) is Al?

$$\frac{15.8\%}{100\%} = \frac{x}{100g} \qquad x =$$

If I have 403 grams of $Al_2(SO_4)_3$, how much (mass) is Al?

$$\frac{15.8\%}{100\%} = \frac{x}{403g} \qquad x =$$

Nov 3-2:04 PM

Find the % composition of each element in Manganese (II) cyanide.

$$Mn(CN)_2$$

Mn	55	55
C	12 x 2	24
N	14 x 2	28
		107

percent compostion by mass?

%Mn $\dfrac{55}{107}$ x 100 = 51.4 %Mn

%C $\dfrac{24}{107}$ x 100 = 22.5 %C

%N $\dfrac{28}{107}$ x 100 = 26.2 %N

How much Mn can be recovered from 78 g sample of $Mn(CN)_2$?

$$\frac{51.4}{100} = \frac{x}{78g}$$

Nov 15-6:17 PM

OBJ: Student will be able to calculate the percent composition of an atom based on atomic mass.
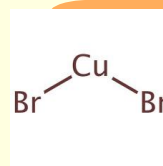
Percent composition by atomic mass

Find the percent composition by mass of copper (Cu) in $CuBr_2$.

Mass of Cu in the compound x   100 = Percent Composition
Total Mass of $CuBr_2$ Compound

- use periodic table for masses
- round to nearest tenth

Mass of Cu: 63.5 amu

Mass of $CuBr_2$:

Cu 1 x 63.5   63.5

Br   2 x 79.9 = 159.8

223.3 amu

$$\frac{63.5}{223.3} \; x \; 100 = 28.4\%$$

Find the percent compositions of Br in $CuBr_2$.

$$\frac{159.8}{223.3} \; x \; 100 = 71.6\%$$

All percentages should total 100

28.4 % Cu
+71.6 % Br
100 %