

Name: \_\_\_\_\_ Hour: \_\_\_\_\_

**PERCENT COMPOSITION** – Chemistry, Unit 9

Directions: Find the **FORMULA MASS** for the compound AND the **PERCENTAGE COMPOSITION** for each element in the following compounds. ***Clearly label the formula mass and percents.***

1. Aluminum oxide
2. Phosphoric acid
3. Barium chloride dihydrate
4. Ethyl alcohol,  $C_2H_5OH$
5. Permanganic acid
6. Zinc cyanide
7. Dinitrogen pentasulfide
8. Calcium phosphate
9. Iron (II) thiosulfate pentahydrate
10. Ammonium oxalate

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### PERCENT COMPOSITION – Chemistry, Unit 9

Directions: Find the FORMULA MASS for the compound AND the PERCENTAGE COMPOSITION for each element in the following compounds. Clearly label the formula mass and percents.

1. Aluminum oxide  $Al_2O_3$

$Al$   $2 \cdot 26.98 = 53.96$

$O$   $3 \cdot 15.9994 = 47.9982$

$\% Al = \frac{53.96}{101.9582} = 52.92\% Al$

$\% O = \frac{47.9982}{101.9582} = 47.08\% O$

2. Phosphoric acid  $H_3PO_4$

$H$   $3 \cdot 1.008 = 3.024$

$P$   $1 \cdot 30.974 = 30.974$

$O$   $4 \cdot 15.999 = 63.996$

$\% H = \frac{3.024}{97.99} \cdot 100 = 3.086\% H$

$\% P = \frac{30.974}{97.99} = 31.61\% P$

$\% O = \frac{63.996}{97.99} = 65.31\% O$

3. Barium chloride dihydrate  $BaCl_2 \cdot 2H_2O$

$Ba$   $137.327$

$Cl$   $35.45 \cdot 2 = 70.90$

$H$   $4 \cdot 1.008 = 4.032$

$O$   $2 \cdot 18.015 = 36.03$

$\% Ba = \frac{137.327}{244.257} = 56.22\%$

$\% Cl =$

4. Ethyl alcohol,  $C_2H_5OH$

$C$   $2 \cdot 12.011 = 24.022$

$H$   $6 \cdot 1.008 = 6.048$

$O$   $1 \cdot 15.999 = 15.999$

$\% C = \frac{24.022}{46.069} \cdot 100 = 52.14\% C$

$\% H = \frac{6.048}{46.069} = 13.13\% H$

$\% O = \frac{15.999}{46.069} = 34.73\%$

5. Permanganic acid  $HMnO_4$

$H = 1.008$

$Mn = 54.938$

$O = 4 \cdot 15.999 = 63.996$

$\% H = .8404\%$

$\% Mn = 45.80\%$

$\% O = 53.36\%$

6. Zinc cyanide  $Zn(CN)_2$

F. Mass = 117.43

$\% Zn = 55.68\%$

$\% N = 23.85\%$

$\% C = 20.45\%$

7. Dinitrogen pentasulfide  $N_2S_5$

$N$   $2 \cdot 14.007 = 28.014$

$S$   $5 \cdot 32.064 = 160.32$

$\% N = 14.87\%$

$\% S = 85.13\%$

8. Calcium phosphate  $Ca_3(PO_4)_2$

$\% Ca = 38.76\%$

$\% P = 19.97\%$

$\% O = 41.26\%$

9. Iron (II) thiosulfate pentahydrate  $FeS_2O_3 \cdot 5H_2O$

$\% H = 3.91\%$

$\% S = 24.85\%$

$\% Fe = 21.64\%$

$\% O = 49.60\%$

10. Ammonium oxalate  $NH_4^+ C_2O_4^{2-} (NH_4)_2C_2O_4$

F. M = 124.074

$\% N = 22.57\%$

$\% H = 6.49\%$

$\% C = 19.36\%$

$\% O = 51.58\%$