Page 146 #3

$$22.5\text{ g Zn} \times \frac{1\text{ mol}}{65.39\text{ g}} = 0.344\text{ mol}$$

$$0.688\text{ g Mg} \times \frac{1\text{ mol}}{24.31\text{ g}} = 0.0283\text{ mol}$$

$$4.0 \times 10^{22}\text{ atoms Cu} \times \frac{1\text{ mol}}{6.022 \times 10^{23}} = 0.066\text{ mol}$$

Page 146 #3

$$382\ \text{g Co} \times \frac{1\ \text{mol}}{58.93\ \text{g}} = 6.48\ \text{mol}$$

$$0.055\ \text{g Sn} \times \frac{1\ \text{mol}}{118.71\ \text{g}} = 4.6 \times 10^{-4}\ \text{mol}$$

$$8.5 \times 10^{24}\ \text{molecules N}_2 \times \frac{2\ \text{atoms}}{1\ \text{molecule}} \times \frac{1\ \text{mol}}{6.022 \times 10^{23}\ \text{molecules}} = 28\ \text{mol}$$

Page 146 #5

$$0.550 \text{ mol Au} \times \frac{196.97 \text{ g}}{1 \text{ mol Au}} = 108 \text{ g}$$

$$15.8 \text{ mol } H_2O \times \frac{18.02 \text{ g}}{1 \text{ mol } H_2O} = 285 \text{ g}$$

$$12.5 \text{ mol } Cl_2 \times \frac{70.90 \text{ g}}{1 \text{ mol } Cl_2} = 886 \text{ g}$$

$$3.15 \text{ mol } NH_4NO_3 \times \frac{80.06 \text{ g}}{1 \text{ mol } NH_4NO_3} = 252 \text{ g}$$

Page 146 #7

$$1.26 \text{ mol } O_2 \times \frac{6.022 \times 10^{23}}{1 \text{ mol}} = 7.59 \times 10^{23} \text{ molecules}$$

$$0.56 \text{ mol } CH_4 \times \frac{6.022 \times 10^{23}}{1 \text{ mol}} = 3.4 \times 10^{23} \text{ molecules}$$

$$16.0 \text{ g } CH_4 \times \frac{6.022 \times 10^{23}}{16.05 \text{ g}} = 6.00 \times 10^{23} \text{ molecules}$$

$$1000. \text{ g HCl} \times \frac{6.022 \times 10^{23}}{36.46 \text{ g}} = 1.652 \times 10^{25} \text{ molecules}$$

Page 146 #9

$$11 \text{ molecules } C_2H_5OH \times \frac{9 \text{ atoms}}{1 \text{ molecule}} = 99 \text{ atoms}$$

$$25.0 \text{ atoms Ag} = 25.0 \text{ atoms Ag}$$

$$0.0986 \text{ g Xe} \times \frac{6.022 \times 10^{23} \text{ atoms}}{131.29 \text{ g}} = 4.52 \times 10^{20} \text{ atoms}$$

$$72.5 \text{ g } CHCl_3 \times \frac{6.022 \times 10^{23} \text{ molecules}}{119.37 \text{ g}} \times \frac{5 \text{ atoms}}{1 \text{ molecule}} = 1.83 \times 10^{24} \text{ atoms}$$

Pg. 146 #11

$$1 \text{ atom Pb} \times \frac{207.20 \text{ g}}{6.022 \times 10^{23} \text{ atoms}} = 3.441 \times 10^{-22} \text{ g}$$

$$1 \text{ atom Ag} \times \frac{107.87 \text{ g}}{6.022 \times 10^{23} \text{ atoms}} = 1.791 \times 10^{-22} \text{ g}$$

$$1 \text{ molecule } H_2O \times \frac{18.02 \text{ g}}{6.022 \times 10^{23} \text{ molecules}} = 2.992 \times 10^{-23} \text{ g}$$

$$1 \text{ molecule } C_3H_5(NO_3)_3 \times \frac{227.20 \text{ g}}{6.022 \times 10^{23} \text{ molecules}} = 3.773 \times 10^{-22} \text{ g}$$

Pg. 146 #13

$$8.66 \text{ mol Cu} \times \frac{63.55 \text{ g}}{1 \text{ mol Cu}} = 550. \text{ g}$$

$$125 \text{ mol Au} \times \frac{197.0 \text{ g}}{1 \text{ mol Au}} \times \frac{1 \text{ kg}}{10^3 \text{ g}} = 24.6 \text{ kg}$$

$$10. \text{ atoms C} \times \frac{1 \text{ mol}}{6.022 \times 10^{23} \text{ atoms}} = 1.7 \times 10^{-23} \text{ mol}$$

$$5000 \text{ molecules } CO_2 \times \frac{1 \text{ mol}}{6.022 \times 10^{23} \text{ molecules}} = 8 \times 10^{-21} \text{ mol}$$

Page 146 #15

carbon disulfide = CS_2

$1\ \text{mol} = 6.022 \times 10^{23}\ \text{molecules}$

$$6.022 \times 10^{23}\ \text{molecules} \times \frac{1\ \text{carbon atom}}{1\ \text{molecule}} = 6.022 \times 10^{23}\ \text{carbon atoms}$$

$$6.022 \times 10^{23}\ \text{molecules} \times \frac{2\ \text{sulfur atoms}}{1\ \text{molecule}} = 1.204 \times 10^{24}\ \text{sulfur atoms}$$

$$6.022 \times 10^{23}\ \text{molecules} \times \frac{3\ \text{atoms}}{1\ \text{molecule}} = 1.807 \times 10^{24}\ \text{total atoms}$$

Pg. 146 #17

$$16.0\ g\ O_2 \times \frac{6.022\times10^{23}\ molecules}{32.00\ g\ O_2} \times \frac{2\ atoms}{1\ molecule} = 6.02\times10^{23}\ atoms$$

$$0.622\ mol\ MgO \times \frac{1\ mol\ O}{1\ mol\ MgO} \times \frac{6.022\times10^{23}\ atoms}{1\ mol\ O} = 3.75\times10^{23}\ atoms$$

$$6.022\times10^{23}\ molecules\ C_6H_{12}O_6 \times \frac{6\ O\ atoms}{1\ C_6H_{12}O_6} = 3.613\times10^{24}\ atoms$$

Pg. 146 #19

$$25.0\ g\ AgBr \times \frac{107.87\ g\ Ag}{187.77\ g\ AgBr} = 14.4\ g\ Ag$$

$$6.34\ mol\ (NH_4)_3PO_4 \times \frac{3\ mol\ N}{1\ mol\ (NH_4)_3PO_4} \times \frac{14.01\ g}{1\ mol\ N} = 266\ g\ N$$

$$8.45 \times 10^{22}\ molecules\ SO_3 \times \frac{3\ O\ atoms}{1\ molecule\ SO_3} \times \frac{16.00\ g}{6.022 \times 10^{23}\ atoms\ O} = 6.74\ g\ O$$

Page 147 #21abc

$$\%Na = \frac{22.99}{102.89} = 22.34\%$$

$$\%Br = \frac{79.9}{102.89} = 77.66\%$$

$$\%K = \frac{39.10}{100.12} = 39.05\%$$

$$\%H = \frac{1.01}{100.12} = 1.01\%$$

$$\%C = \frac{12.01}{100.12} = 12.00\%$$

$$\%O = \frac{48.00}{100.12} = 47.94\%$$

$$\%Fe = \frac{55.85}{162.20} = 34.43\%$$

$$\%Cl = \frac{106.35}{162.20} = 65.567\%$$

Page 147 #21def

$$\%Si = \frac{28.1}{170.1} = 16.5\% \qquad \%Cl = \frac{142.0}{170.1} = 83.48\%$$

$$\%Al = \frac{54.0}{342.3} = 15.8\% \qquad \%S = \frac{96.3}{342.3} = 28.1\% \qquad \%O = \frac{192.0}{342.3} = 56.09\%$$

$$\%Ag = \frac{107.9}{169.9} = 63.51\% \qquad \%N = \frac{14.0}{169.9} = 8.24\% \qquad \%O = \frac{48.0}{169.9} = 28.3\%$$

Page 147 #23

$$\%Fe = \frac{55.85}{71.85} = 77.73\%$$

$$\%Fe = \frac{111.70}{159.70} = 69.94\%$$

$$\%Fe = \frac{167.55}{231.55} = 72.36\%$$

$$\%Fe = \frac{55.85}{368.37} = 15.16\%$$

Page 147 #25

$$\%P = \frac{6.20}{14.20} = 43.7\%$$

$$\%O = \frac{8.00}{14.20} = 56.3\%$$

Page 147 #27

In letter a, there is a larger ratio of H:O in H_2O than H_2O_2 so **H_2O** has the larger percentage of hydrogen.

In letter b, there is a smaller ratio of N:O in N_2O_3 than NO so **N_2O_3** has the smaller percentage of nitrogen.

In letter c, there is an equal ratio of O:N in NO_2 than N_2O_4 so **they have the same percentage of oxygen.**

Pg. 147 #31a

$$63.6\ g\ N \times \frac{1\ mol\ N}{14.01\ g} = 4.5396\ mol\ N \div 2.275 = 2$$

$$36.4\ g\ O \times \frac{1\ mol\ O}{16.00\ g} = 2.275\ mol\ O \div 2.275 = 1$$

$$N_2O$$

Pg. 147 #31b

$$46.7\ g\ N \times \frac{1\ mol\ N}{14.01\ g} = 3.326\ mol\ N \div 3.326 = 1$$

$$53.3\ g\ O \times \frac{1\ mol\ O}{16.00\ g} = 3.331\ mol\ O \div 3.326 = 1$$

$$NO$$

Pg. 147 #31c

$$25.9\ g\ N \times \frac{1\ mol\ N}{14.01\ g} = 1.848\ mol\ N \div 1.848 = 1$$

$$74.1\ g\ O \times \frac{1\ mol\ O}{16.00\ g} = 4.631\ mol\ O \div 1.848 = 2.5$$

$$N_2O_5$$

Pg. 147 #31d

$$43.4\ g\ Na \times \frac{1\ mol\ Na}{22.99\ g} = 1.887\ mol\ Na \div 0.9409 = 2$$

$$11.3\ g\ C \times \frac{1\ mol\ C}{12.01\ g} = 0.9409\ mol\ C \div 0.9409 = 1$$

$$45.3\ g\ O \times \frac{1\ mol\ O}{16.00\ g} = 2.831\ mol\ O \div 0.9409 = 3$$

$$Na_2CO_3$$

Pg. 148 #33

$$3.996\ \text{g Sn} \times \frac{1\ \text{mol Sn}}{118.71\ \text{g}} = 0.03366\ \text{mol Sn} \div 0.03366 = 1$$

$$1.077\ \text{g O} \times \frac{1\ \text{mol O}}{16.00\ \text{g}} = 0.06731\ \text{mol O} \div 0.03366 = 2$$

$$SnO_2$$

Page 148 #35

mass O = 2.775 – 2.465 = 0.310 g

$$0.310\text{ g O} \times \frac{1\text{ mol O}}{16.00\text{ g}} = 0.0194\text{ mol O} \div 0.0194 = 1$$

$$2.465\text{ g Cu} \times \frac{1\text{ mol Cu}}{63.55\text{ g}} = 0.0388\text{ mol Cu} \div 0.0194 = 2$$

Cu_2O or copper (I) oxide

Page 148 #37

$$(0.6545)(110.1\text{ g}) = 72.06\text{ g C} \times \frac{1\text{ mol C}}{12.01\text{ g}} = 6$$

$$(0.0545)(110.1\text{ g}) = 6.00\text{ g H} \times \frac{1\text{ mol H}}{1.01\text{ g}} = 6$$

$$(0.2909)(110.1\text{ g}) = 32.03\text{ g O} \times \frac{1\text{ mol O}}{16.00\text{ g}} = 2$$

$C_6H_6O_2$

Page 148 #39

$$(0.267)(90.04\ \text{g}) = 24.0\ \text{g C} \times \frac{1\ \text{mol C}}{12.01\ \text{g}} = 2$$

$$(0.022)(90.04\ \text{g}) = 2.0\ \text{g H} \times \frac{1\ \text{mol H}}{1.01\ \text{g}} = 2$$

$$(0.711)(90.04\ \text{g}) = 64.0\ \text{g O} \times \frac{1\ \text{mol O}}{16.00\ \text{g}} = 4$$

$C_2H_2O_4$

Pg. 148 #41

$39.54 - 12.04 = 27.50 \text{ g O}$

$$12.04 \text{ g N} \times \frac{1 \text{ mol N}}{14.0 \text{ g}} = 0.860 \text{ mol N} \div 0.860 = 1$$

$$27.50 \text{ g O} \times \frac{1 \text{ mol O}}{16.0 \text{ g}} = 1.72 \text{ mol O} \div 0.860 = 2$$

$$\frac{\text{molecular mass}}{\text{empirical mass}} = \frac{92.0}{46.0} = 2$$

empricial = NO_2 molecular = N_2O_4

Pg. 148 #43

$$(0.4004)(100.09\ \text{g}) = 40.08\ \text{g X} \times \frac{1\ \text{mol X}}{\text{molar mass X}} = 1$$

$$(0.1200)(100.09\ \text{g}) = 12.01\ \text{g Y} \times \frac{1\ \text{mol Y}}{\text{molar mass Y}} = 1$$

$$(0.4796)(100.09\ \text{g}) = 48.00\ \text{g Z} \times \frac{1\ \text{mol Z}}{\text{molar mass Z}} = 3$$

X = Ca (molar mass = 40.1 g) Y = C (molar mass = 12.0 g)

Z = O (3 molar masses = 48.0 g so 1 molar mass = 16.0 g)

$CaCO_3$

Page 148 #45

$$\frac{0.350\ mol\ P_4}{x} = \frac{1\ mol\ P_4}{6.022 \times 10^{23}\ molecules} \qquad x = 2.11 \times 10^{23}\ molecules$$

$$\frac{2.11 \times 10^{23}\ molecules}{x} = \frac{1\ molecule\ P_4}{4\ total\ atoms} \qquad x = 8.44 \times 10^{23}\ atoms$$

Page 148 #46

$$10.0\ \text{g K} \times \frac{6.022 \times 10^{23}\ \text{atoms}}{39.1\ \text{g}} = 1.54 \times 10^{23}\ \text{atoms K}$$

$$1.54 \times 10^{23}\ \text{atoms Na} \times \frac{23.0\ \text{g}}{6.022 \times 10^{23}\ \text{atoms}} = 5.88\ \text{g Na}$$

Page 148 #47

$$\frac{1 \text{ atom}}{1.79 \times 10^{-23} \text{ g}} = \frac{6.022 \times 10^{23}}{x}$$

$$x = 10.8 \text{ g (Boron)}$$

Page 148 #48

$$5 \text{ lbs sugar} \times \frac{453.59 \text{ g}}{1 \text{ lb}} = 2268.0 \text{ g}$$

$$2268.0 \text{ g } C_{12}H_{22}O_{11} \times \frac{6.022 \times 10^{23} \text{ molecules}}{342.34 \text{ g}} = 3.994 \times 10^{24} \text{ molecules}$$

Page 148 #49

$$\frac{500\ sheets}{4.60\ cm} = \frac{6.022\times10^{23}\ sheets}{x}$$

$$x = 5.54\times10^{21}\ cm = 5.54\times10^{16}\ km = 5.86\ light\ years$$

Page 148 #51

$$\frac{1\ mile^3}{} \times \frac{1.609^3\ km^3}{1\ mile^3} \times \frac{(10^5)^3\ cm^3}{1^3\ km^3} \times \frac{1\ mL}{1\ cm^3} \times \frac{20\ drops}{1\ mL} = 8.3\times10^{16}\ drops$$

$$6.022\times10^{23}\ drops \times \frac{1\ mile^3}{8.3\times10^{16}\ drops} = 7.3\times10^{6}\ mile^3$$

Page 148 #52

$$1\ mol\ Ag\ =\ 107.87\ g$$

$$d = \frac{m}{V} \qquad\qquad 10.5 = \frac{107.87}{V}$$

$$V = 10.3\ cm^3$$

$$If\ \ V = s^3\ \ then\ s\ =\ \sqrt[3]{V} = \sqrt[3]{10.3} = 2.17\ cm$$

Page 148 #53

$$CO_2 : \frac{1.00\ g}{44.01\ \frac{g}{mol}} = 0.0227\ mol = 1.37 \times 10^{22}\ molecules \times 3 = 4.11 \times 10^{22}\ atoms$$

$$O_2 : \frac{1.00\ g}{32.00\ \frac{g}{mol}} = 0.0313\ mol = 1.88 \times 10^{22}\ molecules \times 2 = 3.76 \times 10^{22}\ atoms$$

$$H_2O : \frac{1.00\ g}{18.02\ \frac{g}{mol}} = 0.0555\ mol = 3.34 \times 10^{22}\ molecules \times 3 = 1.00 \times 10^{23}\ atoms$$

$$CH_3OH : \frac{1.00\ g}{32.05\ \frac{g}{mol}} = 0.0312\ mol = 1.88 \times 10^{22}\ molecules \times 5 = 9.40 \times 10^{22}\ atoms$$

Page 148 #56

$$\frac{1\text{ ton}}{}\times\frac{2000\text{ lbs}}{1\text{ ton}}\times\frac{453.59\ g}{1\text{ lb}}=907180\text{ g}$$

5% of 907180 g = 45359 g

$$\frac{mass\ Fe}{mass\ FeSO_4}=\frac{55.9}{55.9+32.1+64.0}=\frac{x}{45359}$$

$$x=16681\text{ g}$$

Pg. 148 #57

$$20.0\text{ g S} \times \frac{1\text{ mol S}}{32.07\text{ g}} = 0.623\text{ mol S}$$

There is a 2:1 ratio of lithium to sulfur in Li_2S.

$$1.24\text{ mol Li} \times \frac{6.94\text{ g}}{1\text{ mol Li}} = 8.61\text{ g Li}$$

Pg. 148 #59

If the formula is ZnS, then there is a 1:1 ratio between zinc and sulfur in this compound. If the number of moles of sulfur is greater than or equal to the number of moles of zinc, enough sulfur will have been added to fully react with the zinc.

$$19.5\text{ g Zn} \times \frac{1\text{ mol Zn}}{65.4\text{ g}} = 0.298\text{ mol Zn} \qquad 9.40\text{ g S} \times \frac{1\text{ mol S}}{32.1\text{ g}} = 0.293\text{ mol S}$$

Although the moles of sulfur is close, it is less than the number of moles of zinc, therefore not enough sulfur has been added.

Page 148 #60

molar mass of $C_{21}H_{28}O_3$ is 328.0 g

$$\%C = \frac{252.0}{328.0} = 76.83\%$$

$$\%H = \frac{28.0}{328.0} = 8.54\%$$

$$\%O = \frac{48.0}{328.0} = 14.6\%$$

Page 149 #63

$$(0.600)(180.2\ \text{g}) = 108\ \text{g C} \times \frac{1\ \text{mol C}}{12.01\ \text{g}} = 9$$

$$(0.0448)(180.2\ \text{g}) = 8.08\ \text{g H} \times \frac{1\ \text{mol H}}{1.01\ \text{g}} = 8$$

$$(0.355)(180.2\ \text{g}) = 64.0\ \text{g O} \times \frac{1\ \text{mol O}}{16.00\ \text{g}} = 4$$

$C_9H_8O_4$

Page 149 #64

The proportion on the left is based on the periodic table, the one on the right is based on the problem:

$$\frac{192.00\ \text{g O}}{342.17\ \text{g Al}_2(SO_4)_3} = \frac{x}{8.50\ \text{g Al}_2(SO_4)_3}$$

$$x = 4.77\ \text{g O}$$

Page 149 #65

$$(0.482)(100\ \text{g}) = 48.2\ \text{g Ga} \times \frac{1\ \text{mol Ga}}{69.72\ \text{g}} = 0.691\ \text{mol Ga} \div 0.691 = 1$$

$$(0.518)(100\ \text{g}) = 51.8\ \text{g As} \times \frac{1\ \text{mol As}}{74.92\ \text{g}} = 0.691\ \text{mol As} \div 0.691 = 1$$

GaAs

Page 149 #69

$$\frac{2.5\text{ g Cu}}{x} = \frac{63.55\text{ g Cu}}{6.022\times10^{23}\text{ atoms}}$$

$$x = 2.4\times10^{22}\text{ atoms}$$

Page 149 #71

$$6.1 \text{ billion people} \times \frac{1 \text{ mol}}{6.022 \times 10^{23}} = 1.0 \times 10^{-14} \text{ mol}$$

Page 149 #72

$$23.3\ g\ Co \times \frac{1\ mol\ Co}{58.93\ g} = 0.395\ mol\ Co \div 0.264 = 1.5$$

$$25.3\ g\ Mo \times \frac{1\ mol\ Mo}{95.94\ g} = 0.264\ mol\ Mo \div 0.264 = 1$$

$$51.4\ g\ Cl \times \frac{1\ mol\ Cl}{35.45\ g} = 1.45\ mol\ Cl \div 0.264 = 5.5$$

*double all values to obtain integers

$Co_3Mo_2Cl_{11}$

Page 149 #73

$$18\text{ g Al} \times \frac{6.022 \times 10^{23}\text{ atoms}}{27.0\text{ g}} = 4.0 \times 10^{23}\text{ atoms Al}$$

$$\text{twice as many atoms of Mg} = 8.0 \times 10^{23}\text{ atoms Mg}$$

$$8.0 \times 10^{23}\text{ atoms Mg} \times \frac{24.3\text{ g}}{6.022 \times 10^{23}} = 32\text{ g Mg}$$

Pg. 149 #74

$$(0.177)(10.0) = 1.77 \text{ g N}$$

$$3.8\times10^{23} \text{ atoms H} \times \frac{1.01 \text{ g}}{6.02\times10^{23} \text{ atoms}} = 0.64 \text{ g H}$$

$$\text{mass C} = 10.0 - 1.77 - 0.64 = 7.59 \text{ g C}$$

Pg. 149 #74

$$1.77\ \text{g N} \times \frac{1\ \text{mol N}}{14.0\ \text{g}} = 0.126\ \text{mol N} \div 0.126 = 1$$

$$0.64\ \text{g H} \times \frac{1\ \text{mol H}}{1.01\ \text{g}} = 0.64\ \text{mol H} \div 0.126 = 5$$

$$7.59\ \text{g C} \times \frac{1\ \text{mol C}}{12.0\ \text{g}} = 0.633\ \text{mol C} \div 0.126 = 5$$

C_5H_5N

Pg. 149 #75

Assume you have 100 g.

$$40.0\ \text{g} \times \frac{1\ \text{mol O}}{16.00\ \text{g}} = 2.50\ \text{mol O}$$

There is a 2:1 ratio of A to O, so there are 5.00 mol A

$$5.00\ \text{mol A} \times \frac{\text{molar mass A}}{1\ \text{mol A}} = 60.0\ \text{g}$$

molar mass of A = 12.01 g Formula = C_2O

Pg. 149 #76

$a.\ CH_2O$

$b.\ C_4H_9$

$c.\ CH_2O$

$d.\ C_{25}H_{52}$

$e.\ C_6H_2Cl_2O$

Pg. 149 #77

$(0.3459)(78.01) = 26.98$ g A $\div$ molar mass A = 1

$(0.6153)(78.01) = 48.00$ g B $\div$ molar mass B = 3

$(0.0388)(78.01) = 3.03$ g C $\div$ molar mass C = 3

molar mass A = 26.98 g (Al)

molar mass B = 16.00 g (O)

molar mass C = 1.01 g (H)

$Al(OH)_3$

Pg. 149 #77

Al_2O_3 has a molar mass of 101.96 g.

$$\% \text{ Al} = \frac{54.0}{101.96} = 52.9\%$$

$$\% \text{ O} = \frac{48.0}{101.96} = 47.1\%$$

Pg. 149 #78

$$4.776\text{ g } CO_2 \times \frac{1\text{ mol } CO_2}{44.01\text{ g}} \times \frac{1\text{ mol C}}{1\text{ mol } CO_2} \times \frac{12.01\text{ g}}{1\text{ mol C}} = 1.30\text{ g C}$$

$$2.934\text{ g } H_2O \times \frac{1\text{ mol } H_2O}{18.02\text{ g}} \times \frac{2\text{ mol H}}{1\text{ mol } H_2O} \times \frac{1.01\text{ g}}{1\text{ mol H}} = 0.329\text{ g H}$$

$$\text{mass O} = 2.500 - 1.30 - 0.329 = 0.871\text{ g O}$$

Pg. 149 #78

$$1.30\ \text{g C} \times \frac{1\ \text{mol C}}{12.01\ \text{g}} = 0.108\ \text{mol C} \div 0.0544 = 2$$

$$0.329\ \text{g H} \times \frac{1\ \text{mol H}}{1.01\ \text{g}} = 0.329\ \text{mol H} \div 0.0544 = 6$$

$$0.871\ \text{g O} \times \frac{1\ \text{mol O}}{16.00\ \text{g}} = 0.0544\ \text{mol O} \div 0.0544 = 1$$

C_2H_6O