

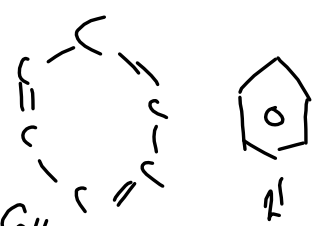
Sep 24-7:21 AM

3.34 a

a) $\frac{5.76 \times 10^{-3} \text{ mole C}_2\text{S}}{1 \text{ mole C}_2\text{S}} \times 144 \text{ g C}_2\text{S} = 0.83 \text{ g C}_2\text{S}$

b) $\frac{112.6 \text{ g NH}_4\text{Cl}}{53 \text{ g NH}_4\text{Cl}} \times 1 \text{ mole NH}_4\text{Cl} = 2.11 \text{ mole NH}_4\text{Cl}$

c) $\frac{1.305 \times 10^{-2} \text{ mole C}_6\text{H}_6}{1 \text{ mole C}_6\text{H}_6} \times 6.02 \times 10^{23} \text{ molecules C}_6\text{H}_6 = 7.86 \times 10^{21} \text{ molecules C}_6\text{H}_6$



Sep 24-7:47 AM

3.34d

4.88×10^{23} mole $\text{Al}(\text{NO}_3)_3$	9 mole O	6.02×10^{23} atoms O
1 mole $\text{Al}(\text{NO}_3)_3$	1 mole O	:

2.644×10^{22} atoms O

Sep 24-7:55 AM

99.892% C-12
 1.108% C-13

0.99892(12) + 0.01108(13)

$12.13108 \text{ amu (OA) g/mole}$

*% in decimal form * MASS
 Add up all isotopes*

Weighted average

Sep 24-8:06 AM

% composition % C in $C_6H_{12}O_6$

$$\frac{C_6}{C_6H_{12}O_6} \times 100 = \frac{6(12)}{6(12) + 12(1) + 6(16)} \times 100$$

C₆ H₁₂ O₆

(Parentheses in calculator!)

40%

Sep 24-8:10 AM

0.255g Isopropyl Alcohol Combustion 0.561g CO₂ + 0.306g H₂O
Rxn

$C_x H_y O_z$
↑ ↑ ↑
empirical formula.

subscripts x, y, z = # moles of each element.

$C_x H_y O_z + O_2 \rightarrow CO_2 + H_2O$

0.255g 0.561g 0.306g

① Moles C "x"

0.561g CO ₂	1 mole CO ₂	1 mole C	= 0.01275 mole C = "x"
44g CO ₂	1 mole CO ₂	1 mole C	

 $\times \frac{12g}{1mole} = 0.1535g$

② Moles H = "y"

0.306g H ₂ O	1 mole H ₂ O	2 mole H	= 0.034 mole H = "y"
18g H ₂ O	1 mole H ₂ O	1 mole H	

 $\times \frac{1mole}{1g} = 0.034g H$

0.255 - (0.153 + 0.034) = 0.068g
 (X+Y+Z) X Y Z any
 (C+H+O) - (C + H)

$\frac{0.068g O}{16g O} = 0.00425 mole O$
"z"

Sep 24-8:16 AM

Moles \Rightarrow

	C	H	O
	$\frac{0.01275}{0.00425}$	$\frac{0.034}{0.00425}$	$\frac{0.00425}{0.00425}$
Subscripts	3	8	1
Whole #'s !			
divide by <u>smallest #</u>			

C_3H_8O OR C_3H_7OH

Sep 24-8:31 AM

Limiting Reagent/Reactant

1 Frames + 4 tires \rightarrow 1 CAR

10 (circled) 50

LR Used up \rightarrow 12 1/2 cars.

10 cars (circled) \leftarrow Limiting reagent

left over 40 tires (circled) 10 extras (circled)

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