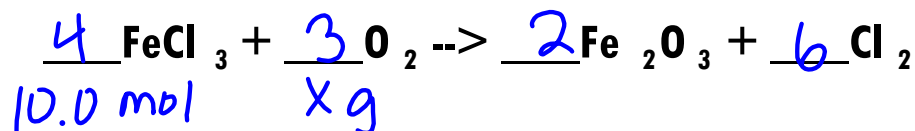


Practice:

How many grams of oxygen gas is required to react with 10.0 moles of iron (III) chloride?



$$10.0 \text{ mol FeCl}_3 \times \frac{3 \text{ mol O}_2}{4 \text{ mol FeCl}_3} \times \frac{32 \text{ g O}_2}{1 \text{ mol O}_2} =$$

$$= 240. \text{ g O}_2$$

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Practice:

Determine the number of significant figures in the measurements below.

a. 0.0000236 $'''$ 0

b. 1000 1

c. 6300. 4

d. 6020 3

e. 10.021 $''$ 5

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Practice:

Calculate the following and put into correct significant figures.

a. $12.53 - 6.1 + 2.01$ $= 8.44 \rightarrow \boxed{8.4}$

b. $0.206 + 0.002$ $= 0.208$

c. $16.200 / 2.00000$ $= 8.1000$

(Handwritten notes: underlines under 5 and 6 in the original image)

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Practice:

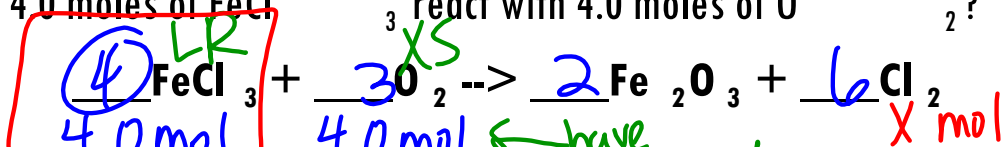
What is the molar mass of NaCl?

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Practice:

How many moles of chlorine gas can be produced

if 4.0 moles of FeCl_3 react with 4.0 moles of O_2 ?



a. What is the limiting reactant?

$$4.0 \text{ mol FeCl}_3 \times \frac{3 \text{ mol O}_2}{4 \text{ mol FeCl}_3} = 3.0 \text{ mol O}_2 \text{ (XS)}$$

$$4.0 \text{ mol FeCl}_3 \times \frac{6 \text{ mol Cl}_2}{4 \text{ mol FeCl}_3} = 6.0 \text{ mol Cl}_2$$

b. How much excess do you have?

$$4.0 \text{ mol O}_2 - 3.0 \text{ mol O}_2 = 1.0 \text{ mol O}_2$$

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Practice:

The percent composition of a compound was found to be 63.5% silver, 8.2% nitrogen and 28.3% oxygen. Determine the compound's empirical formula.

$$63.5 \text{ g Ag} \times \frac{1 \text{ mol Ag}}{108 \text{ g Ag}} = \frac{.588 \text{ mol Ag}}{.588} = 1 \quad \boxed{\text{AgNO}_3}$$

$$8.2 \text{ g N} \times \frac{1 \text{ mol N}}{14 \text{ g N}} = \frac{.59 \text{ mol N}}{.588} = 1 \quad \text{AgNO}_3$$

$$28.3 \text{ g O} \times \frac{1 \text{ mol O}}{16 \text{ g O}} = \frac{1.77 \text{ mol O}}{.588} = 3$$

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Practice:

The empirical formula for the trichloroisocyanuric acid, the active ingredient in many household bleaches, is OCNCl . The molar mass of this compound is 232.41 g/mol . What is the molecular formula of trichloroisocyanuric acid?

$$\begin{aligned}
 \text{O} &= 1 \times 16 = 16 \\
 \text{C} &= 1 \times 12 = 12 \\
 \text{N} &= 1 \times 14 = 14 \\
 \text{Cl} &= 1 \times 35 = 35 \\
 \hline
 &77 \text{ g/mol}
 \end{aligned}$$

$$\frac{232.41 \text{ g/mol}}{77 \text{ g/mol}} = 3$$

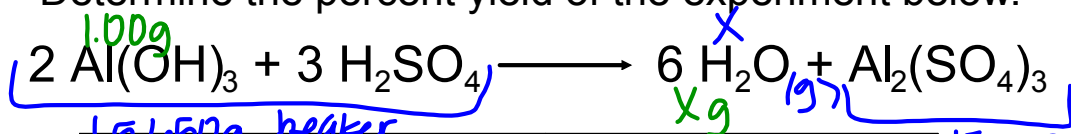
$$\text{O}_3\text{C}_3\text{N}_3\text{Cl}_3$$

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Practice:

accel chem

Determine the percent yield of the experiment below.



Initial Mass of Al(OH)_3	1.00 grams
Mass of Beaker and Reactants	15.650 grams
Mass of Solid Product ($\text{Al}_2(\text{SO}_4)_3$)	15.000 grams
Mass of gas product (H_2O)	.650 g - a.y.

$$1.00 \text{ g Al(OH)}_3 \times \frac{1 \text{ mol Al(OH)}_3}{78 \text{ g Al(OH)}_3} \times \frac{6 \text{ mol H}_2\text{O}}{2 \text{ mol Al(OH)}_3} \times \frac{18 \text{ g H}_2\text{O}}{1 \text{ mol H}_2\text{O}} = .692 \text{ g H}_2\text{O}$$

$$\frac{.650 \text{ g}}{.692} \times 100 = 93.9\%$$

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