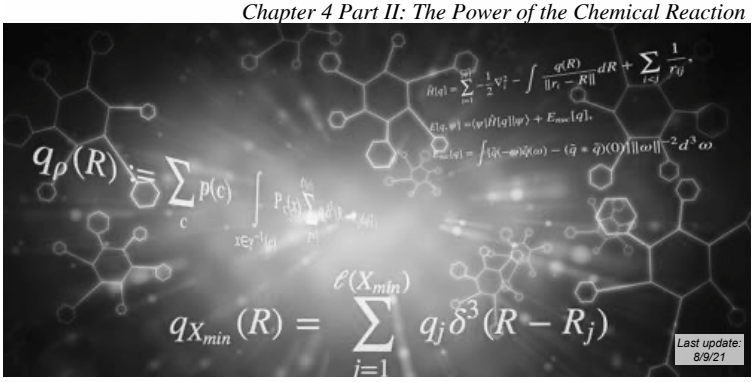
Chemistry 151: Basic Chemistry

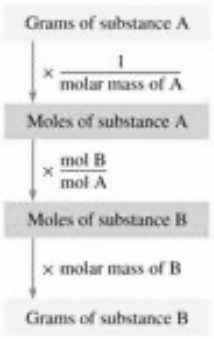
Chapter 4 Part II: The Power of the Chemical Reaction



The Power of Chemical Reactions

A balanced chemical reaction will show the relative amounts of reactants and products. In this section we will apply the balanced reaction to "real world" situations whereby quantities of products created or reactants needed can be predicted... and more!

This section exemplifies why chemists get paid: bosses want to know 'how much' plastic will be made for cell phones, they do not care about moles *(lol)*.... this is an important chapter!



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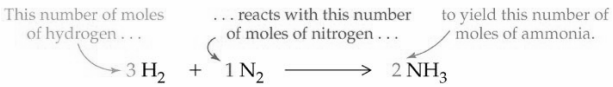
Coefficients in Chemical Equations

Coefficients in a *balanced* chemical equation tell how many molecules (and thus how many moles) of each reactant are needed *and* how many molecules (and thus moles) of each product are formed.



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Coefficients in Chemical Equations

In the equation:

$C_3H_8 + 5\ O_2 \rightarrow 3\ CO_2 + 4\ H_2O$

this equation means

1 mole C_3H_8 + 5 moles O_2 → 3 moles CO_2 + 4 moles H_2O

OR

1 molecule C_3H_8 + 5 molecules O_2 → 3 molecules CO_2 + 4 molecules H_2O

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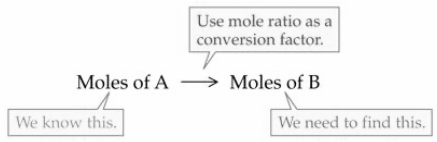
Converting Moles in Equations

We can use a mole ratio from a chemical equation to convert mol (*or g*) of A into mol (*or g*) of B



This is useful in determining how much product is created from so much reactant

Also used for determining how much reactant necessary to create so much product

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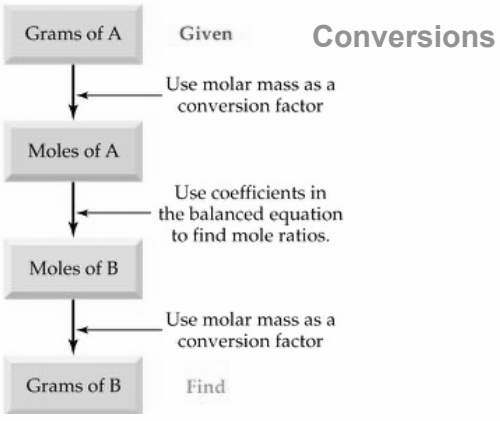

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