

Reaction Types: Combustion

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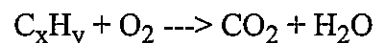
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Important notes to remember: (1) NONE of the equations are balanced!! and (2) make sure to write correct formulas. DO NOT just copy the subscripts from the reactants over into the products.

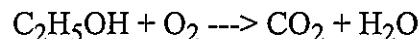
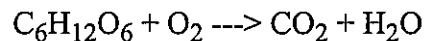
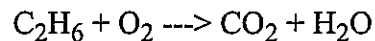
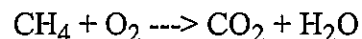
Combustion, at its most general, can mean the reaction of oxygen gas (O₂) with anything.

However, we will understand combustion to mean the reaction of oxygen with an compound containing carbon and hydrogen. A common synonym for combustion is burn.

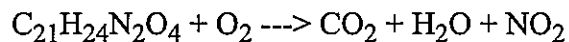
Written using generic symbols, it is usually shown as:



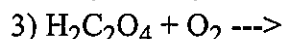
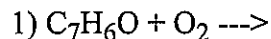
These are some examples:



Notice that some compounds contain carbon, hydrogen AND oxygen. However, the products are all the same, in every reaction. Isn't that great? We could vary it a bit by adding nitrogen (burns to form NO₂) to the compound formula or sulfur (burns to form SO₂). Like this:



Here are some combustions:



Example #1

How to figure out the right (or product side):

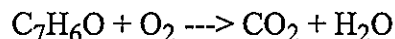
(1) Identify the reaction as combustion:

A carbon-hydrogen compound reacting with oxygen

(2) Know that the combustion products . . .

are always CO_2 and H_2O

So the final answer looks like this:



Example #2

How to figure out the right (or product side):

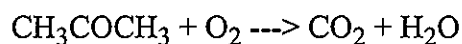
(1) Identify the reaction as combustion:

A carbon-hydrogen compound reacting with oxygen

(2) Know that the combustion products . . .

are always CO_2 and H_2O

So the final answer looks like this:



Example #3

How to figure out the right (or product side):

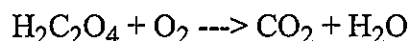
(1) Identify the reaction as combustion:

A carbon-hydrogen compound reacting with oxygen

(2) Know that the combustion products . . .

are always CO_2 and H_2O

So the final answer looks like this:

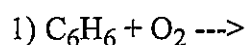


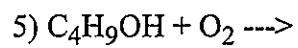
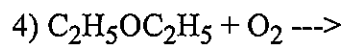
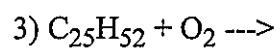
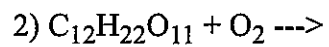
There are complexities with combustion as you get deeper into it. For example, a combustion with insufficient oxygen yields carbon monoxide rather than carbon dioxide. That, and other issues, will arise later in your chemical career.

Practice Problems

Note that none of the example problems above are balanced. Your teacher may require this, but the ChemTeam will only provide some of the following answers balanced. The rest are up to you!!

Write correct formulas for the products in these combustion reactions.





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