

Lesson 12: Combustion and single replacement reactions

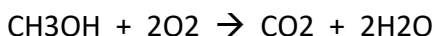
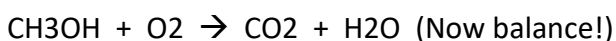
1. Combustion

- Reaction in which a hydrocarbon or alcohol burns in the presence of oxygen.

A hydrocarbon is a molecule that only contains carbon and hydrogen.

- Generic Equation $C_xH_y + O_2 \rightarrow CO_2 + H_2O$
- Example: $CH_4 + O_2 \rightarrow CO_2 + H_2O$
- ❖ Carbon dioxide and water are always the products

An alcohol is a molecule that contains carbon, hydrogen and oxygen.



- * Note the products are the same as before.

* video link summarizes combustion and incomplete combustion (about 3.5 minutes long)

<https://www.youtube.com/watch?v=NI0bipxyuyk>

Single Replacement

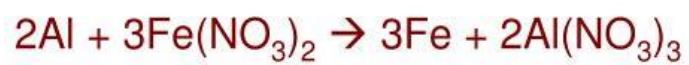
- Reaction in which a compound reacts with an element to form a new element and a new compound.
- Generic Equation $AX + B \rightarrow BX + A$
- Example: $NaCl + Zn \rightarrow ZnCl_2 + Na$
- ❖ If two metals (or substances that form cations) are present, they swap places; if two non-metals are present, they swap places.

Rules:

1. For the new element, check the 7 + 1 rule.
2. For the new compounds, use crossing over.

Orally: For the purpose of this course, we will assume that these reactions always take place even though this is not actually the case.

Practice examples: Predict the products and balance the equations.



Homework: Two worksheets

1. Combustion reactions
2. Single replacement reactions