**Chemical Reactions Homework -- Reaction Types: Daily Life Examples**

Filling in the chart:

* *Type of reaction*: Is the given equation a synthesis, decomposition, single replacement, double replacement, or combustion reaction?
* *Number and type of atoms*: The subscripts (small numbers) and coefficients (numbers in front of elements/compounds) tell you how many atoms of each element there are.
* *Does each element start and end with the same number of atoms?*: yes or no?
* *As the equation is written, is mass conserved?*: yes or no?

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| Equation | Application | Type of reaction | Number and type of atoms in reactants (left side): | Number and type of atoms in products (right side): | Does each element start and end with the same number of atoms? | As the equation is written, is mass conserved? |
| KClO3(s) 🡪 O2(g) + KCl(s) | Potassium chlorate in small firecrackers or as a source of oxygen gas: |  | K:Cl:O: | K:Cl:O: |  |  |
| 2C8H18 + 25O2 🡪16CO2 + 18H2O | Starting a car |  |  |  |  |  |
| Al(OH)3 + HBr 🡪 AlBr3 + H2O |  |  |  |  |  |  |
| Ti(OH)4 🡪 TiO2 + H2 | Titanium dioxide in makeup and toothpaste |  |  |  |  |  |
| Ca(NO3)2 (aq) + Na2CO3 (aq) 🡪 CaCO3 (s) + 2 NaNO3 (aq) | Calcium carbonate in laundry detergent |  |  |  |  |  |
| 4Fe (s) + 3O2 → 2Fe2O3 (s) | Rust |  |  |  |  |  |
| C6H12O6 + O2 🡪 CO2 + H2O | Cellular respiration |  |  |  |  |  |
| 2Na + 2H2O 🡪 2NaOH + H2 | Sodium metal reacts explosively with water |  |  |  |  |  |
| N2 + H2 🡪 NH3 | Ammonia |  |  |  |  |  |