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8.3 Classifying Reactions

3 driving forces

Formation of a Solid | Formation of water | transfer of electrons

① Precipitation ② Acid/Base Red Ox

③ Syntesis

④ Decomposition

⑤ Single Replacement

⑥ Combustion

look at reactants to classify

Reactants → Predict Products

① Precipitation and ② Acid Base

Ionic Cmpd(aq) + Ionic Cmpd (aq)

$M_1N_1(aq) + M_2N_2(aq) \rightarrow M_2N_1 + M_1N_2$

trade

precipitation = Form a solid
acid base = Form water

Also known as Double Displacement

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Red Ox

③ Synthesis

$A + B \rightarrow AB$

element + element → compound

④ Decomposition

$AB \xrightarrow{\text{energy}} A + B$

compound → elements + elements

⑤ Single Replacement

$A + BC \rightarrow B + AC$

element + compound → element + compound

metal A will replace metal B only if it is "more active"

. Check activity series to determin if the metal will replace

$A + BC \rightarrow$

non metal A must be more active than nonmetal B.

Check the periodic table for activity

most reactive ↓ least reactive

⑥ Combustion

$H, C + O_2 \rightarrow CO_2 + H_2O$ complete combustion

$H, C + O_2 \rightarrow CO + H_2O$ incomplete combustion

Hydrocarbon