

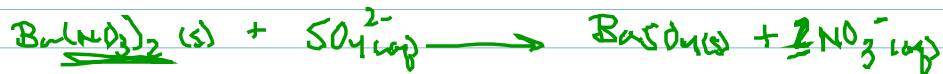
Decomp / synthesis analysis combinations  
 Single replacements  
 \* activity series  
 free element more "greater activity"  
 Redox → half reactions  
 \* e- balance

DOUBLE REPLACEMENTS "PRECIPITATION"

N.I.E.  
~~soluble~~ spectators

\* solid barium nitrate  $Ba(NO_3)_2 (s)$   
 soln " "  $Ba^{2+}, NO_3^-$

\* solid sodium sulfate  $Na^+, SO_4^{2-}$



→ STACH (limitations!)  
 → K<sub>sp</sub>

ACID / BASE NEUTRALIZATIONS

STRONG ACIDS

HCl, HBr, HI  
 HClO<sub>4</sub>, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>  
H<sup>+</sup>

WEAK ACID

HA

STRONG BASES

OH<sup>-</sup>

WEAK BASE

NH<sub>3</sub>  
F<sup>-</sup>  
CO<sub>3</sub><sup>2-</sup>, HCO<sub>3</sub><sup>-</sup>  
 ↓  
 H<sub>2</sub>CO<sub>3</sub> → H<sub>2</sub>O + CO<sub>2</sub>

PRECIPITATES

DECOMP / SYNTHESIS  
analysis combinations

Single replacements  
& activity series

Redox

→ half reactions  
\* e- balance

free element never "greater activity"

DOUBLE REPLACEMENTS "PRECIPITATIONS"

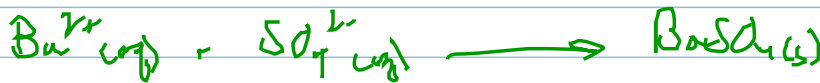
N, I, E.

~~Aluminum~~ Spectators

\* solid barium nitrate  $Ba(NO_3)_2 (s)$

soln " "  $Ba^{2+}, NO_3^-$

\* soln sodium sulfate  $Na^+, SO_4^{2-}$



→ STUCK (dimers!)

→ KSP

ACID / BASE NEUTRALIZATIONS

STRONG ACIDS

HCl, HBr, HI

HClO<sub>4</sub>, HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>

H<sup>+</sup>

WEAK ACID

HA

STRONG BASES

OH<sup>-</sup>

WEAK BASE

NH<sub>3</sub>

\* CO<sub>3</sub><sup>2-</sup>, HCO<sub>3</sub><sup>-</sup>

H<sub>2</sub>CO<sub>3</sub> → H<sub>2</sub>O + CO<sub>2</sub>

PARTICULATES