

Changes in Matter

Def: A substance changing its form.

There are 4 types of changes: chemical, physical, neutralization and combustion.

Review

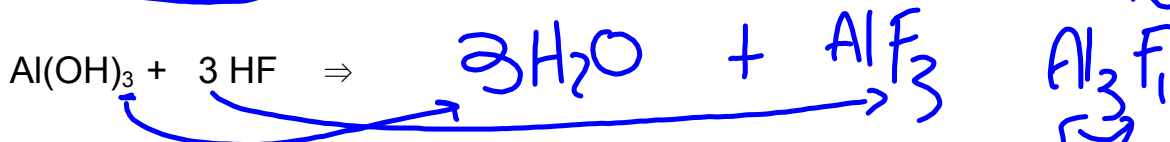
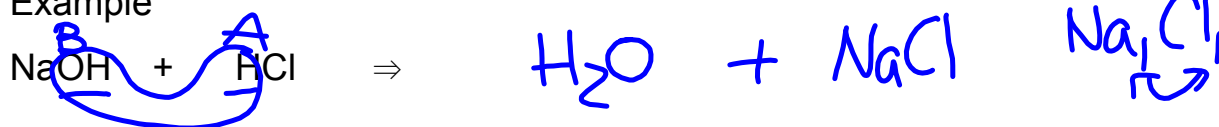
Chemical changes signs	Physical changes signs
<ul style="list-style-type: none">• colour change• heat or light given off• precipitate formed• bubbling• mass change	<ul style="list-style-type: none">• condensation $g \rightarrow L$• fusion $S \rightarrow L$• sublimation $S \rightarrow g$• evaporation $L \rightarrow g$• solidification $L \rightarrow S$• deposition (desublimation) $g \rightarrow S$

Neutralization

Def: Occurs when acids and bases are added to each other in the right proportions.

Once neutralization has occurred, acids and bases are no longer present. Instead you have created two new substances.

Example



Molecules always produced are?

water and a salt

Neutralization reaction.avi



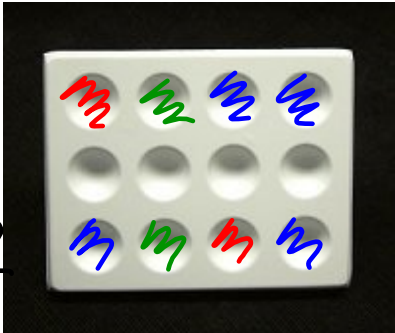
How do antacids work_.avi

Neutralizations labs using indicators

A- How to determine whether an unknown is an acid, base or neutral solution?

A
B
(N)

HCl
NaOH
NaCl
Unknown



+ Indicator

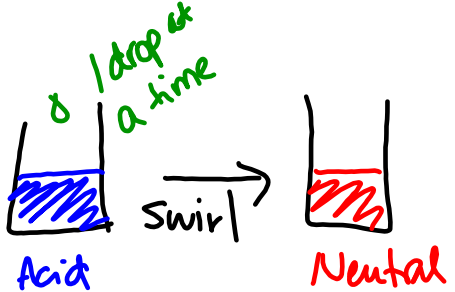
↳ unknown → Neutral

#2 → acid

B- How to neutralize unknown once its origin is determined?

if unknown Acid
→ add a base


if unknown Base
→ add an acid



drop + swirl technique

C- What if you have many indicators to choose from?

HCl NaOH NaCl Unknown



Indicator 1

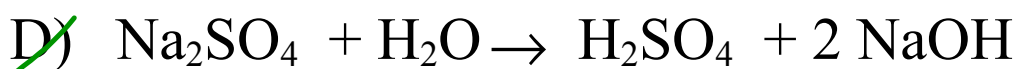
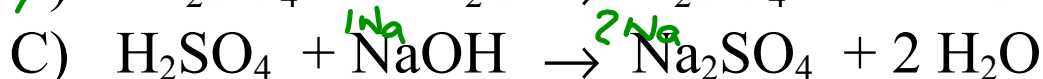
Indicator 2

Indicator 3

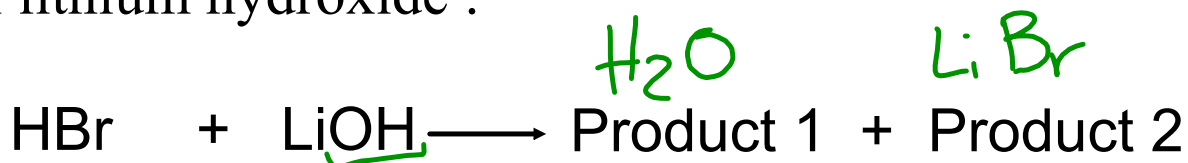
tells you nature of solution

Past exam questions

1. In neutralizing sulfuric acid, H_2SO_4 , with caustic soda, NaOH , sodium sulfate, Na_2SO_4 , and water are produced. Which equation represents this chemical reaction?



2. The following equation represents the reaction that occurs when a solution of hydrogen bromide is combined with a solution of lithium hydroxide :



The products are not identified in the above equation. Identify these products.

Attachments



How do antacids work_.avi



Neutralization reaction.avi