

Changes in Matter

Def: A substance changing its form.

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

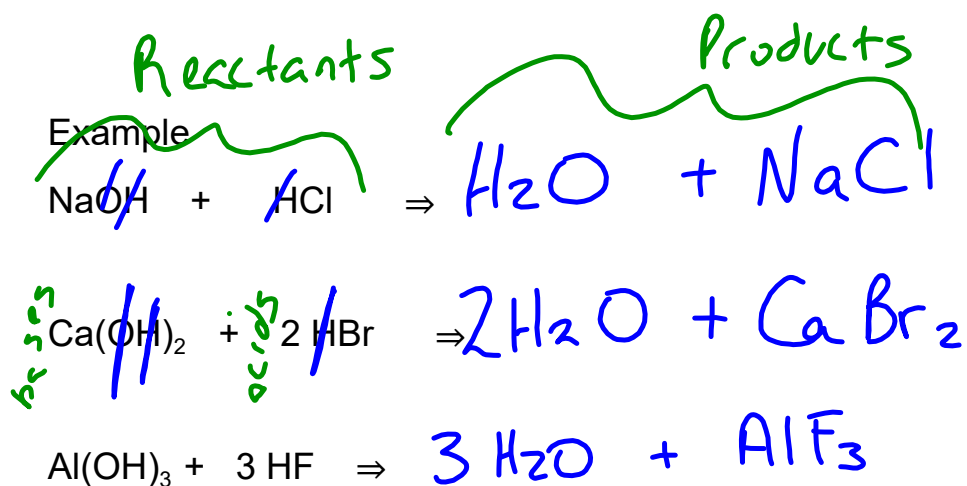
Review

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• fusion• sublimation• evaporation• solidification

Neutralization

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

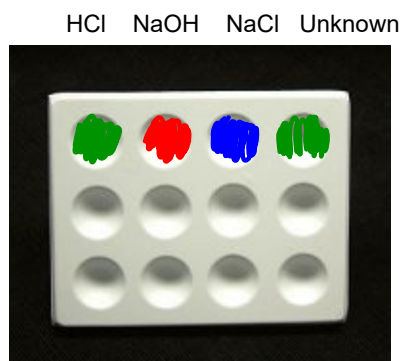
Once neutralization has occurred, acids and bases are no longer present. Instead you have created two new substances.



Molecules always produced are? salt + water

Neutralizations labs using indicators

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



+ Indicator

Unknown = acid because the colours match.

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

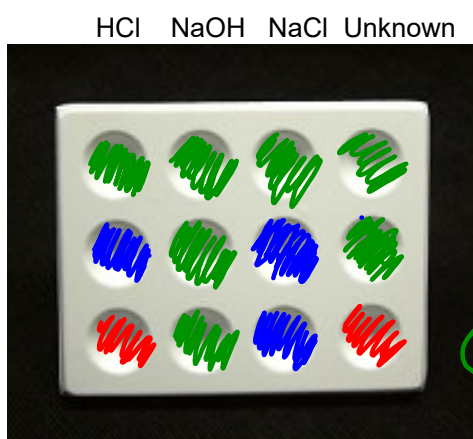
Unknown is an acid

Use drop & swirl technique

Use base drop 1 drop at a time

Stop when after the swirl occurs the neutral colour (blue) remains.

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



Indicator 1

Indicator 2

Indicator 3

a different colour for acid, base & salt

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?

