



EXPERIMENTING WITH ACID AND BASE CHEMISTRY

Acid-Base Chemistry

Define Ion -

Define Cation -

Define Anion -

Define Salt-

Define Acid-

Define Base-

Define Neutralization-

Describe the Characteristics of Acid and Base

Acid	Base

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Know Before You Start:

While vinegar is a common and relatively harmless household ingredient it still contains acid that may harm sensitive parts of the body. Precaution should be taken to avoid spilling vinegar in your eye as it may cause irritation. This can be done through the use of goggles or conducting the experiment at a level arm's length away.

Note: This experiment can be very messy! So be sure to bounce the egg over a plate and have some napkins ready in case a mess happens.

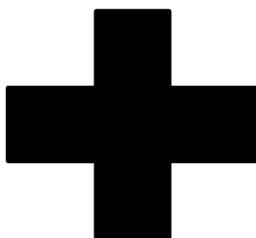
Materials Needed:

- White Vinegar
- Chicken Egg
- Glass Cup
- Plate

Directions:

Step 1 -- Setting up the Reaction

- Gently place a chicken egg in a glass cup
- Pour enough white vinegar in the same glass cup to submerge the egg
- Allow the egg to sit in the solution for 24 hours



- Look at the label on the vinegar bottle and write down any ingredients you believe might react with the egg shell.

Step 2 -- Observe then bounce!

- While the egg is sitting in the solution note any observations you may have
- Periodically check the egg during the 24 period to see how deteriorated the egg shell is
- You know your egg is ready when it has a leathery texture and is completely translucent
- Now you are ready to bounce your egg!
- Be sure you bounce your egg carefully over a plate

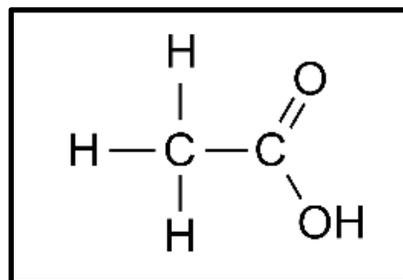


Exploring Acid-Base Chemistry

Having observe your egg turn into a bouncy object its time to take a closer look at the chemistry.



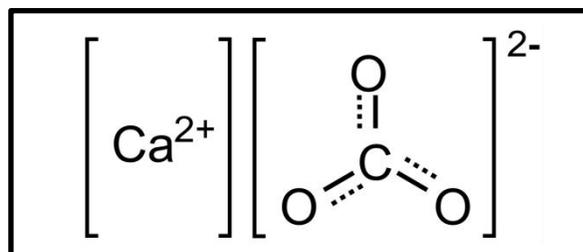
Acetic acid



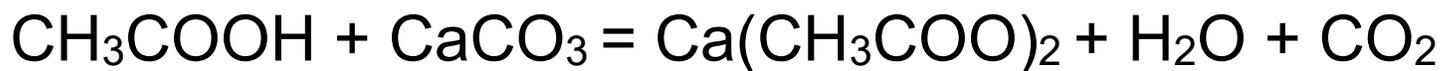
Acetic acid is the active ingredient in vinegar and it is what gives vinegar that pungent smell and sour taste. Acetic acid is a weak acid meaning it does not completely dissociate in water making not very reactive!



Calcium Carbonate



Calcium carbonate is polyatomic ion with great significance as a biological material. An important mineral, it is the main component of eggshells and seashells. In water calcium carbonate dissociates completely with calcium acting as a strong base.



Acetic Acid

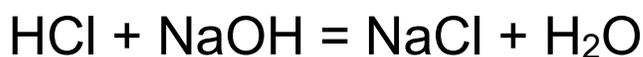
Calcium
Carbonate

Calcium Acetate

Water

Carbon
Dioxide

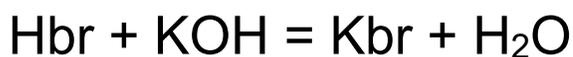
This is the chemical reaction that occurs when you place the egg in vinegar. Calcium carbonate reacts with acetic acid to produce calcium acetate, water and carbon dioxide. When an acid reacts with a base it is called a neutralization reaction and often contain the same elements. Neutralization reactions often produce water and a salt. Below I need your help to label the elements of these neutralization reactions.



Acid

Base

Water



Acid

Base

Salt



Base

Water

