pH indicators

How can we determine the strength of an acid or base?

- The strength of an acid or base is measured in pH which is the concentration of the hydrogen ion (H^+).
- A high pH indicates a strong base, while a low pH indicates a strong acid. A pH of seven indicates a neutral substance (like water).

pH Indicators

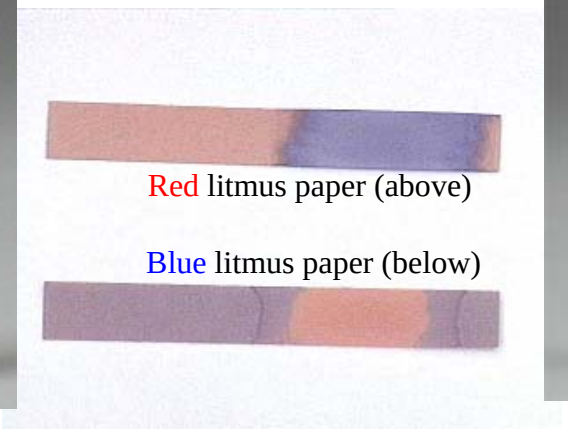
Litmus, pH paper, Cabbage Indicator, Probes

- Many common substances are either acids or bases.
- Some acids, like stomach acid are necessary for our health, while others, like sulfuric acid are dangerous and can cause burns and other injuries.
- Baking soda is a common weak base used in our homes, while sodium hydroxide, a strong base, is hazardous to skin and eyes.

- The easiest way to determine if a substance is acidic or a basic is to use an indicator.
- Indicators are organic molecules that change color in an acid or a base. When an indicator is placed on paper, it provides a fast way to determine if a substance has acidic or basic properties.

- The most common acid/base indicator paper is called litmus paper, so a litmus test is the first test used to determine acidic or basic properties. If the litmus paper does not change color, the substance in neutral

Litmus



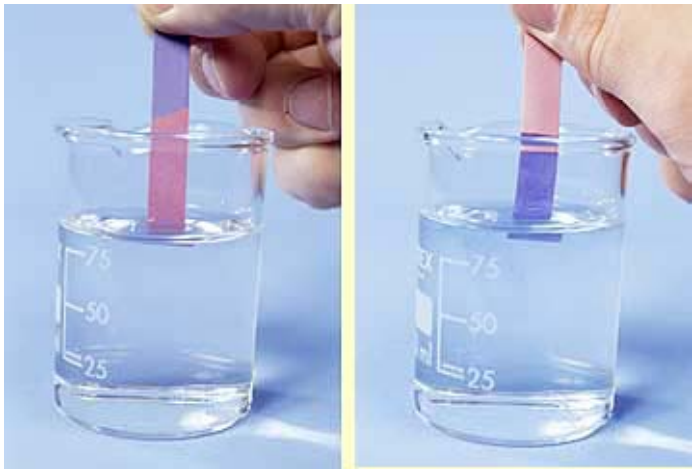
Red litmus paper (above)

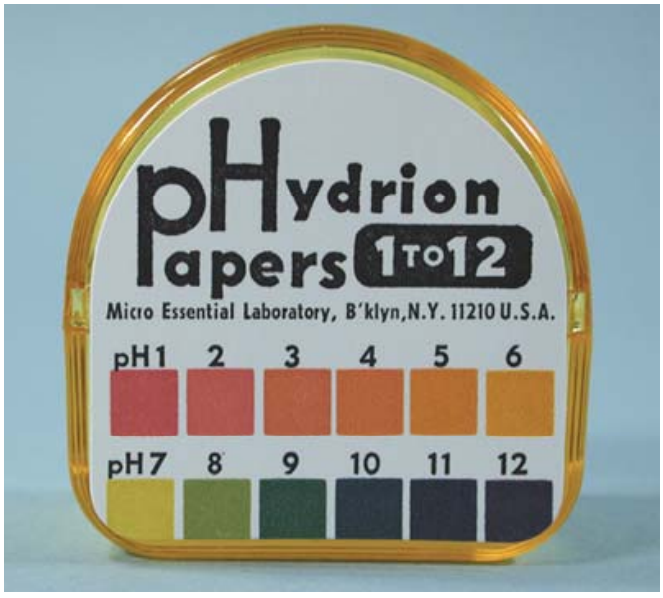
Blue litmus paper (below)

The red litmus paper will turn slightly blue for a base.

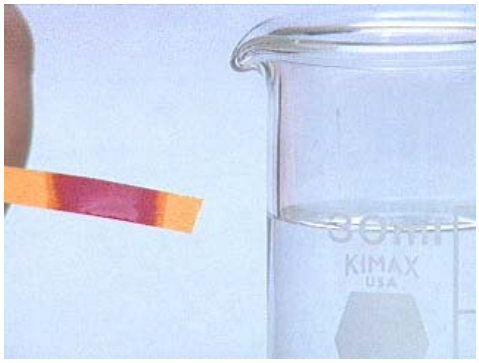
The blue litmus paper will turn slightly pink in an acid.

If nothing happens, it is neutral.


75
50
25
75
50
25

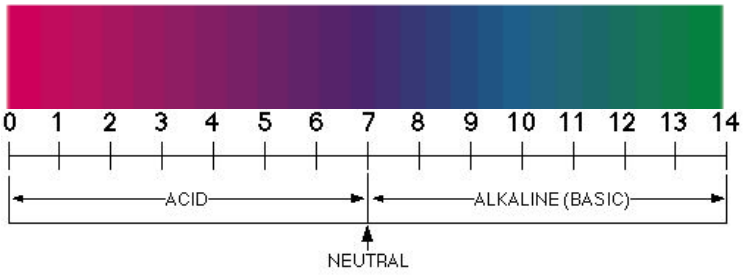

pHydrion
papers 1 TO 12
Micro Essential Laboratory, B'klyn,N.Y. 11210 U.S.A.
pH 1 2 3 4 5 6
pH 7 8 9 10 11 12

pH paper



Is this an acid or a base?

Cabbage Indicator



pH	2	4	6	8	10	12
Color	Red	Purple	Violet	Blue	Blue-Green	Greenish Yellow

At various H^+ concentrations these compounds rearrange their molecular structures giving rise to different colors