

Problem: How can you identify a substance as being an acid, base or salt without using litmus paper?

Procedure:

1. Obtain a beaker of each of the solutions. Separate the clear liquids from the colored liquids.
2. Locate the names of the colored liquids in column A of the Data Table. **Write** the names of the others liquids in column B of the Data Table so that each colored liquid can be matched against each of the other liquids.
3. Using the testtubes and racks, place 3 mL of a colored liquid in each testtube (about 1 cm high). Add an equal amount of a clear liquid. Record what happens in column C. Repeat until each clear liquid is mixed with a colored liquid.
4. Repeat until each clear liquid has been mixed with each colored liquid.
5. Clean all the testtubes and return the testtubes, beakers and rack to the front of the room.

Observations: See Data Table on the other side of this sheet.

Questions:

1. Place each of the colored liquids in one column of the table below. Then place the clear liquids into two columns, dividing them according to the way they reacted to the colored ones.

2. Obtain three pieces of red litmus and three pieces of blue litmus paper and test one liquid from each column. According to the litmus papers' reactions, label the column ACID, BASE or SALT.
3. What do the liquids in each column have in common with each other? (For example: What do each of the acids have in common - besides turning the litmus paper a different color?)
4.
 - a. If you had a liquid labelled H_3PO_4 , would it be an acid, base or salt? Why?
 - b. If you had a liquid labelled Na_3PO_4 , would it be an acid, base or salt? Why?
 - c. If you had a liquid labelled $Al(OH)_3$, would it be an acid, base or salt? Why?

Conclusion: Answer the problem. Provide proof. Use at least one "For Example".

Observation Table: Fill in. Write neatly

A	B	C	A	B	C
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
NaOH			Sr(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		
KOH			Ba(OH) ₂		

Litmus Paper Test

Litmus Paper	Red	Blue