

PRE-LAB DISCUSSION

Acidity and basicity is introduced by means of familiar household and chemical substances. Acidity and basicity can be recognized crudely by taste and more accurately by the use of colored substances, which are called indicators.

In this experiment, you will observe the properties of acids and bases with suitable indicators. By the end of this experiment, you will be able to determine the pH of various solutions using universal indicator papers.

PURPOSE

To observe and study some typical properties and reactions of acids and bases.

EQUIPMENT

test tubes
Spatula

test tube rack
rubber stopper

dropper pipettes
glass tubing

MATERIALS

phenolphthalein
CaCO₃
Milk

litmus paper
Vinegar
household ammonia

pH meter
lemon juice
copper, zinc, iron particles

PROCEDURE

1. Put 2-3 small crystals of I2 into a clean and dry beaker.
2. To separate depressions in using spot plate, add about five drops of each of the followings
 - a. 6M HCl
 - b. 6M C₂H₅OH
 - c. 0.5M NaOHUsing a different piece of clean, dry red litmus paper for each of the three solutions, dip the end of a piece of red litmus paper into each solution.
3. Next, dip the end of a piece of blue litmus paper into each solution.
4. Add one drop of phenolphthalein to the solution in each depression.

5. Add small quantities of each of the followings
 - a. Zinc
 - b. Copper
 - c. Aluminum
 - d. Iron into the test tubes
6. Add just enough 6M HCl to cover the metals. Record your observation.
7. Repeat the steps 4 and 5 with NaOH.
8. Place a small amount of CaCO_3 into a test tube. Add some 6M HCl solution onto CaCO_3 . Record your observation.
9. To different depressions in your spot plate, add about five drops of each of the followings; vinegar, lemon juice, tomato juice, milk, household ammonia.
10. Test each substance as you did in step 1, 2 and 3; using red litmus paper, blue litmus paper, pH meter and phenolphthalein.

OBSERVATION AND DATA

	Phenolphthalein	Red litmus	Blue litmus	PH meter
6M HCl
0.5M NaOH
Vinegar
Lemon juice
Tomato juice
Milk
Household

CONCLUSIONS AND QUESTIONS

1. What type of reaction occurs between a metal and an acid? Write a general equation for this type of reaction.
2. Write the general properties of acids and bases.