

Identifying Acids and Bases Lab

Purpose: To identify solutions as acid or base by their characteristics.

We just learned that solutions are acids, bases, or neutral (neither). We also learned that acids and bases react with certain substances, have a certain taste, and have certain properties. In this activity, you will test unknown solutions to see if they are acids or bases. For each of the following, test each unknown solution using the procedure provided.

SAFETY:

- Do not touch or taste any of the chemicals.
- Wear your goggles at all times!

Carbonate Test

You learned that _____ react with carbonates (like limestone rock). This reaction will produce bubbles that contain a gas. For this test, you will add a drop of each solution to a small piece of chalk. Here is the procedure for this test:

1. Break the chalk into 5 pieces and place each piece into a medicine cup.
2. Add 5mL of solution to the chalk in the medicine cup.
3. Observe any reactions. If bubbles form, write a positive sign (+) in the correct space on the data table on the back of this sheet. If no bubbles form, write a negative sign (-) in the correct space on your data table.
4. Throw away used chalk. Rinse medicine cups.

Cabbage Indicator Liquid Test

Acids and bases can affect other liquids. An indicator solution can be made by boiling red cabbage. The liquid from it can tell you if a solution is an acid or base. Here is the procedure for this test.

1. Pour 5mL of the liquid into each medicine cup.
2. Add drops of the unknown solution to the cabbage liquid until it changes color. Red/purple = acid; blue/green/yellow = base. Record the color on your data table.
3. Rinse the small beaker and repeat steps 2-4 until all solutions are tested.

Litmus Test

Litmus paper will help you confirm your current data. Litmus paper is a piece of paper that has a chemical on it that will react with acids and bases. If your solution is an acid, the blue paper will turn _____ (what color?). If your solution is a base, the red paper will turn _____ (what color?). *Note: if you add an acid to red litmus paper, no color change will occur! The same is true for adding a base to blue litmus paper.* Here is the procedure for this test:

1. Get 5 pieces of blue litmus paper and 5 pieces of red litmus paper (see Mr. Ower for the paper.)
2. Add one drop (.25-.5mL) of solution to one red and one blue litmus paper. Rinse the dropper between each solution. Record any changes you see in the correct spot on your data table below.
3. Throw away any used litmus paper. Wipe up the tray when you are finished.

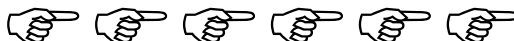
Data Table

Fill in the table below with the results from your lab.

	Carbonate Test	Cabbage Test	Litmus Test
Solution 1			
Solution 2			
Solution 3			
Solution 4			
Solution 5			

Analyzing Results

1. Which solutions are acids? _____
2. Which solutions are bases? _____



Conclusion Questions

1. How can you tell if a solution is an acid? Write your answer in complete sentences. _____

2. How can you tell if a solution is a base? Write your answer in complete sentences. _____

3. Scenario: During this lab, a student gets a negative result for the carbonate test. With permission, they add the liquid to a piece of metal and do not observe a reaction. However, the solution turns the blue litmus paper red. It also turns the cabbage liquid purple. Should the student say the solution is an acid or a base? Why?

4. If you were allowed to taste the solutions, which solutions would taste sour? _____
Why did you pick those solutions? _____
5. How would the non-sour solutions taste? _____