

Dry Ice and Red Cabbage Juice

Instructions

Materials:

Large beaker filled with water
Red cabbage juice*
0.1 M NaOH (sodium hydroxide)
Dry ice

*Red cabbage juice indicator can be made easily and safely. Chop the cabbage into small pieces and mix with boiling water. Allow the cabbage to sit in the water for at least 10 minutes. You should see a dark purplish-blue solution. Strain the cabbage mixture and collect the solution in a separate container. Store the solution in the refrigerator when not in use.

Set Up:

1. Add 1.0 mL of 0.1 M NaOH to the water to form a basic solution.
2. Add 2-3 mL of red cabbage juice indicator to the basic solution. You should observe a dark blue color when the indicator is mixed with the solution.

Demo Procedure:

1. Point out to the students that in a basic solution, the red cabbage juice indicator turns the solution a deep blue color (pH 7-8).
2. Drop dry ice into the basic solution.
3. Observe the rigorous bubbling of the carbon dioxide gas and the gradual change in the color of the solution from blue to purple (pH 5-6).

Waste Disposal:

The final solution can be poured down the drain safely.

Variations:

- Pour some of the deep blue solution into a 2nd beaker to act as a color control. The color change is more obvious when you compare the original color to the final solution color.