

Classroom Chemistry – Alka-Seltzer and Colour

Can you create an exact colour match using chemistry?

Materials:

- Alka-Seltzer tablets
- Lemon juice
- Straw
- Water
- Zip-closing plastic bag
- Flat toothpick
- Pencil
- Paper
- Red cabbage
- Small cups
- Baking soda
- Masking tape
- Measuring cup



Procedure: (Remember to have your parent's permission and have them watch and help you.)

- Prepare two batches of indicator: Tear up two or three red cabbage leaves into small pieces and put them into a zip-closing plastic bag. Add one cup of very warm water to the bag, seal it tightly and squeeze the leaves in the bag until the water turns a dark blue-red colour. This is your indicator solution. It changes colour when certain substances are added to it.
- Use the tape and a pencil to label two cups A and B. Pour 1/4 cup of the indicator in each.
- In a third cup, add 1/4 cup of water. Place one Alka-Seltzer tablet in the water. Wait for the tablet to dissolve completely. Use your straw to place five drops of this Alka-Seltzer solution into cup A. Swirl the cup. Compare the color in cup A to the color in cup B.
- Reading the package of Alka-Seltzer you see the ingredients are sodium bicarbonate (baking soda, a base) and citric acid (found in citric fruits).
- CHALLENGE! See if you can add the right amounts of lemon juice and baking soda to the indicator in cup B to reproduce the exact color that the five drops of Alka-Seltzer solution produced in cup A.
- TECHNIQUE: Add one drop of lemon juice to the indicator solution in cup B. Swirl the cup. If this does not match the color of the solution in cup A, use your toothpick to add a small amount of baking soda to cup B and swirl again. Keep track of the exact amounts of lemon juice and baking soda you are adding.
- When you think you have the answer, test your results. Rinse out cups A and B. Place 1/4 cup of indicator in cups A and B. Add five drops of Alka-Seltzer solution to cup A as before, and swirl. Add the amount of lemon juice and baking soda that you think will match the color in cup A, and swirl. How did you do?

What's happening?

Matching the colour of an indicator is a technique chemists use to determine the strength of acids and bases

Extension:

If you save this lab until Christmas you can use red Poinsettia leaves instead of the red cabbage.

This activity is based on our "Classroom Chemistry" kit that is currently under development. The source for this lab is: http://www.alka-seltzer.com/as/student_experiment.html. Our teaching kits (described on our website) are loaned out FREE to provide classroom teachers and parents of home schooled children an opportunity to explore Science in interesting ways. Please consider volunteering as a classroom speaker or allow your business as a field trip location.

Lorne Cooper, Regional Executive Director

PRAXIS, "Making Science Fun". Contact Praxis at praxis@praxismh.ca, www.praxismh.ca, Tweet or follow us @PraxisMedHat, or friend us on Facebook. Address: c/o 200 7th Street S.W., Medicine Hat, AB, T1A 4K1 Phone: 403-527-5365, Fax: 403-527-6570.