

Classroom Chemistry – Alka-Seltzer and Temperature

For a chemical reaction to occur, the particles (atoms) which are the reactants must physically come into contact with one another. Anything that increases the frequency of these encounters will increase the rate at which products are formed. Will the rate of a chemical reaction be increased by increasing the temperature of the reactants?



Materials:

- 3 clear cups
- 3 Alka-Seltzer tablets
- Ice cubes
- Measuring cup
- Stop watch
- Graph paper
- Mortar & Pestle
- Thermometer -20 to 110 degrees C
- Source of hot water

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

- Run the hot water tap to get it hot as possible and take its temperature.
- Add one Alka-Seltzer tablet to 250 ml of hot water and record the time it takes to dissolve (be prepared it's done in seconds).
- Repeat the previous step but with lukewarm or room temperature water.
- Repeat the previous step but with ice water (leave the cubes in).

What's happening?

The molecules in water are constantly moving. The higher the temperature of the water, the faster the molecules are moving. The faster the molecules move the more collisions that occur between the water molecule and the tablet. Since chemical reactions occur when the Alka-Seltzer molecule and water molecule collide with each other, the more frequent the collisions the faster the reaction.

Extension:

Graph the data (water temperature versus time to fully dissolve) to show the effect of temperature on the rates of reaction. Connect the data points with a line. Do you notice a pattern to the line? If there is a pattern, can you use it to predict the results for temperatures you didn't test yet?

This lab reviewed the scientific concepts of reactants, products and prediction.

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.