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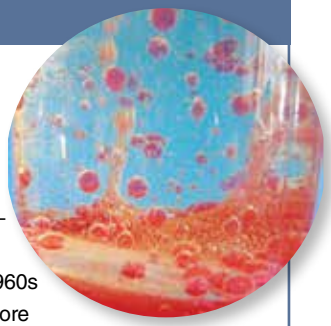
ACTIVITY

By Erica K. Jacobsen



Homemade Lava Lamp

Styles come and go. Today's hot item often quietly disappears from stores, to be replaced by a new fad. Sometimes the fad runs full circle—you see an item that faded from popularity in the past regain its "gotta have" status. Lava lamps went through this cycle; they were wildly popular in the 1960s and 1970s, waned in popularity, and then came back again. You can learn more about this chemistry-driven novelty in the *ChemMatters* article "Lava Lite®: A Chemical Juggling Act" (April 1997, pp. 4–7). You can also use materials from the grocery store for a lava lamp-like experiment using the directions below.

Materials

- Two Alka-Seltzer® tablets
- Two small cups
- Vegetable oil
- Water
- Clear, colorless plastic bottle (1-L size with non-ridged sides works well)
- Funnel
- Food coloring

Wear safety goggles when performing this activity and do not taste any of the materials used in this experiment.

1. Remove the bottle's cap and labels. Rinse out the bottle.
2. Break two Alka-Seltzer® tablets into quarters.
3. Fill a small cup half full of vegetable oil. Fill a second cup half full of water.
4. Place one piece of Alka-Seltzer® into each cup. What do you observe?
5. Using the funnel, pour water into the bottle so that it is about one-third full.
6. Add 5–7 drops of food coloring to the water. Swirl to mix.
7. Add vegetable oil to fill most of the remaining space in the bottle, so there is approximately 5–10 cm of air space at the top of the bottle.
8. Drop the remaining pieces of Alka-Seltzer® into the bottle, either one at a time, or several at once. ***(Caution: Do not place the cap on the bottle.)***
9. Afterward, decant as much of the oil as possible into a separate container to dispose of in the trash. Add dish detergent to the remaining liquid and dispose of it down the drain with running water.

The reaction is driven by baking soda ($NaHCO_3$) and citric acid ($C_6H_8O_7$) in the Alka-Seltzer® tablet. One product is the bubbles—what are they? Were the ingredients able to dissolve and mix to react in the cup of oil, water, or both? What is a possible explanation for the bubble action you saw in the bottle? (Hint: think density.)

Want more things to try? Visit the ACS CHEMCLUB Activities pages online! Topics include Valentine's Day Chemistry, Baking & Chemistry, Forensics, and more. Then, explore each topic's links to demos, experiments, and videos. Head to: www.acs.org/chemclub and click on "Activities."

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