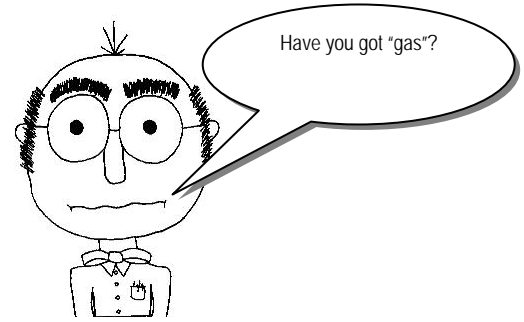


Gas Production in Magma (Simulation)



Magma is a fluid solution of rock-forming materials and gases which eventually cools to form igneous rock. Some liquids and gases within the magma are less dense than the main mass. These gases, and some very hot liquids, rise to the top of the magma. They carry some early forming crystals along with them as they rise.

Strategy:

You will make simulated "magma" that produces gas.

You will observe the effect of the gas on solids within the magma.

You will compare action in your activity with the probable action of gases within a magma.

Materials:

- baking soda
- beaker, 400 mL
- beaker, 250 mL
- 2 raisins (fresh)
- plastic spoon
- vinegar (white)
- water

Procedure:

1. Obtain 2 heaping spoons full of baking soda in a weighing dish. Stir and dissolve it in 250 mL of water in a 400 mL beaker.
2. Cut your two raisins into ¼'s and place them in the beaker. They should settle to the bottom.
3. Add about 125 mL of vinegar to the beaker slowly and stir slowly. (You can estimate this amount in a beaker and do not have to measure accurately with a graduated cylinder.)
4. When the action settled down, begin observing what is happening inside the beaker for the next 10 minutes or so. Observe any changes that occur.

Observations and Data:

Conclusions:

1. Vinegar reacts with soda water to form carbon dioxide (CO₂). Explain why the raisins are doing what they are doing.

2. Why do the raisins eventually stop moving?

3. Why do less dense materials tend to collect at the top of the magma?

4. What might happen to the raisins if a large volume of carbon dioxide gas were formed under pressure, and then the pressure was suddenly released?

5. How is this activity similar to the eruption of Mt. St. Helens in Washington?
