





California State University of Bakersfield, Department of Chemistry

# The Can Crusher



## **Standards:**

8<sup>th</sup> 3. d. & e. Students know the states of matter depend on molecular motion. 5. d. Students know physical processes include freezing and boiling, in which a material changes form with no chemical reaction.

#### **Introduction:**

This experiment will show students one example of differences in pressure in the environment. By heating aluminum cans and subjecting them to a colder environment, a vacuum effect will be created inside the can. This will instantly crush the can without having to touch it!

#### **Materials:**

- Several empty aluminum cans
- ½ Liter of cool water
- Hot plate (or other heat source which the cans can rest on)
- Shallow dish (such as a 9x13 baking dish)
- Tongs

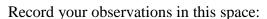
### **Safety:**

- Always have an adult with you to help you during your experiment.
- Always wear eye protection and gloves when doing chemistry experiments
- Conduct this experiment in a well-ventilated area.
- Be extremely careful with your heat source, you could be burned!

### **Procedure:**

- 1. Prepare your heat source, and place the aluminum cans on it, with the opening facing up.
- 2. Add several mL's of water to the cans, and allow the water to heat up.
- 3. Prepare your shallow dish, and fill it with approximately 3/4 in. of cool water.
- 4. As the cans are heated, use your tongs to pick up the cans. Invert them, and submerge just the opening under the water.

## **Data and Observations:**



What did you see? Anything you were not expecting? Describe it here.

# **Questions:**

Why did the can seemingly crush itself after submerged in cold water, what forces are demonstrated here?

What do you think would happen if you submerge a cold can into hot water, would you see similar results?

## **References:**

1. Spangler, S. Air Pressure Can Crusher. Steve Spangler Science. Web. July 19, 2012.