

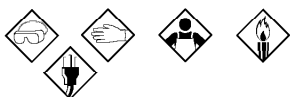


Can Crusher

Condensation can occur when gas particles come near the surface of a liquid. The gas particles slow down because they are attracted to the liquid. This reduction in speed causes the gas particles to condense into a liquid. In this lab, you'll see that particles that have condensed into a liquid don't take up as much space and therefore don't exert as much pressure as they did in the gaseous state.

MATERIALS

- water
- 2 empty aluminum cans
- heat-resistant gloves
- hot plate
- tongs
- 1 L beaker



Conduct an Experiment

1. Place just enough water in an aluminum can to slightly cover the bottom.
2. Put on heat-resistant gloves. Place the aluminum can on a hot plate turned to the highest temperature setting.
3. Heat the can until the water is boiling. Steam should be rising vigorously from the top of the can.
4. Using tongs, quickly pick up the can and place the top 2 cm of the can upside down in the 1 L beaker filled with room-temperature water.
5. Describe your observations below.

Analyze the Results

6. The can was crushed because the atmospheric pressure outside the can became greater than the pressure inside the can. Explain what happened inside the can to cause this.

Can Crusher, continued

Draw Conclusions

- 7. Inside every popcorn kernel is a small amount of water. When you make popcorn, the water inside the kernels is heated until it becomes steam. Explain how the popping of the kernels is the opposite of what you saw in this lab. Be sure to address the effects of pressure in your explanation.

Going Further

Try the experiment again, but use ice water instead of room-temperature water. Explain your results in terms of the effects of temperature.
