

Demonstration Download: Soda Can

ChemTeacher Demonstrations

Soda Can

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Purpose: Demonstrate Charles' Law by imploding an aluminum soda can with nothing more than a bowl of ice water. Explanation: The sudden drop in temperature inside the can from $\sim 95^{\circ}\text{C}$ to $\sim 0^{\circ}\text{C}$ makes the pressure drop quickly. The difference in pressure between the room and the inside of the can is too much for the aluminum, so the can collapses.

Materials

1 empty aluminum soda can 1 bowl ice water heat source (electric stove, hot plate, etc.) 1-2 mL H₂O

Procedure

Heat can right-side-up to 100°C . To make sure the can is hot enough, put a couple drops of water on the top of the can. When the water drops dry, the can is hot enough. Add water. 1-2 mL. Wait about 25 seconds. Quickly turn the can upside-down in the bowl of ice water.

Notes

Wear safety goggles at all times. Do not handle the hot can with bare hands. Do not overheat the can. Once all the water evaporates, the can heats up very quickly, and it will melt and cause a fire. Do not drink from or otherwise the soda can after the experiment.

Demonstration Time	minutes	Difficulty	No specific experience required
Portions	Local grocery store 	Availability of Materials	
Preparation Time		Cost of materials	