

Density – Sinking and Floating Soda Cans



Imagine a hot summer day. You're at a picnic and go to the ice chest where the sodas are staying nice and cool. Which cans are floating in the ice water, and which have sunk to the bottom?

For this experiment you will need:

- several unopened cans of regular soda of different varieties
- several unopened cans of diet soda of different varieties
- a large aquarium or sink

Fill the aquarium or sink almost to the top with water. Place a can of regular soda into the water. Make sure that no air bubbles are trapped under the can when you place it in the water. Does it sink or float? Repeat the experiment with a can of diet soda. Does it sink or float?

Why does one can sink, and the other can float?

The cans of soda have exactly the same volume, or size. But their density differs due to what is dissolved in the soda. Regular soda contains sugar as a sweetener. If you look at the nutrition facts on a can of regular soda, you will notice that it contains sugar...a lot of sugar. In some cases a 12 ounce can of regular soda will contain over 40 grams of sugar. Diet sodas, on the other hand, use artificial sweeteners such as aspartame. These artificial sweeteners may be hundreds of times sweeter than sugar, which means that less than a few grams of artificial sweetener is used in a can of diet soda. The difference in the amount of dissolved sweeteners leads to a difference in density. Cans of regular soda tend to be more dense than water, so they sink. Cans of diet soda are usually less dense than water, so they float.

Are there any varieties of regular soda that will float? Are there any varieties of diet soda that sink? Can you think other factors that might influence which sodas float or sink?

For another look at how dissolved sugar affects the density of a solution, see the [layered liquids](#) experiment.
