The Secret Science of... Soda Pop

The Fizz Biz

Soda pop companies are in the business of making soda with great flavor and fizz. Soda is made mostly of water but it also contains a sweetener, flavoring, and carbon dioxide gas. It's the gas that gives soda its fizz and that tingly feeling when you drink it.

Let's see how they make a can of soda:

Quality Control

The sweetener and flavoring give soda most of its taste. The sweetener in most soda is made from different types of sugar. Diet soda doesn't have sugar but contains chemicals that taste sweet. The flavoring is made of different ingredients that soda companies keep secret so other companies can't copy it. Both the sugar and the flavoring are tested many times to be sure they

Yes We Can!

The cans are made from aluminum. The inside of the cans are thoroughly cleaned, dried, and coated with a special material. This coating helps keep the acid in the soda from having a chemical reaction with the aluminum.

The cans are inspected very carefully. If a can has any little dent or imperfection, it is rejected and recycled.

Wonderful Water

Before mixing anything in the water to make the soda pop, the soda company makes sure the water is really clean. Different chemicals are added to the water to remove any tiny particles and to kill any bacteria that might be in it. The water is also run through a series of special filters to make sure it is ready for the next step in the soda-making process.

Mix it Up!
The sweetener and flavoring are carefully measured and mixed together to make the soda syrup. Next, just the right amount of syrup is added to the water to create the soda mixture. The soda is now ready except for one important ingredient, the carbon dioxide gas.

Gas it Up!
The soda mixture moves to a tank where it is made very cold. This is because carbon dioxide gas will stay in the soda better if the soda mixture is cold. Next, carbon dioxide gas is added to the soda mixture. The soda is now ready to go into the can.

Fill 'Er Up
Finally, the soda with the sweetener, flavoring, and carbon dioxide gas all mixed together is shot into the can which is immediately closed, labeled, packed and sent to the store.

Find Out More.

Why does soda sometimes shoot out of the can when you open it?

When the soda company adds carbon dioxide gas to the soda mixture, the water is very cold so it can hold a lot of gas. They also use pressure to put more gas in the water than it could normally hold at that temperature. But when the soda can warms up a bit or when the can is shaken, that extra gas is really ready to come out. So when you open up the can and release the pressure, splooosh!

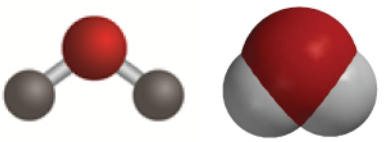
Why does soda bubble so much when you pour it on ice cream to make an ice cream soda?

Ice cream may look smooth to you, but if you could see it with a powerful microscope you would see something different. Throughout the ice cream there are very tiny ice crystals. The gas molecules from the soda gather on these tiny crystals and become bubbles of gas.

What are soda pop's main molecules?

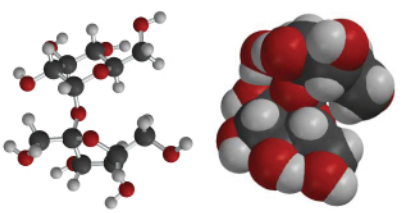
Water

These are two different models of a water molecule. A water molecule is made up of one oxygen atom and two hydrogen atoms. Water makes up about 95% of most sodas.



Sugar

The sweetener in most soda is a mixture of a sugar called glucose and another called fructose. In fact, when these two sugars are attached to each other, it makes another sugar called sucrose. Sucrose is the regular sugar you use in ice tea or in baking. It is made from carbon, oxygen, and hydrogen atoms.



Carbon dioxide

Carbon dioxide is made from one carbon atom and two oxygen atoms. The molecules of carbon dioxide are thoroughly mixed and dissolved into the water in soda pop. When the soda can or bottle is opened, the carbon dioxide will begin to come out of the soda and into the air. Eventually, enough will come out and the soda will become flat.