Mentos and Coke

**Background Information:**

Why do Mentos turn ordinary bottles of diet soda into geysers of fun? The answer is a little more complicated than you might think. Let’s start with the soda . . .

Soda pop is made of sugar or artificial sweetener, flavoring, water, and preservatives. The thing that makes soda bubbly is invisible carbon dioxide (CO2), which is pumped into bottles at the bottling factory using lots of pressure. If you shake a bottle or can of soda, some of the gas comes out of the solution and the bubbles cling to the inside walls of the container (thanks to tiny pits and imperfections on the inside surface of the bottle called **nucleation sites**). When you open the container, the bubbles quickly rise to the top pushing the liquid out of the way. In other words, the liquid sprays everywhere.

Is there another way for the CO2 to escape? Try this. Drop an object like a raisin or a piece of uncooked pasta into a glass of soda and notice how bubbles immediately form on the surface of the object. These are CO2 bubbles leaving the soda and attaching themselves to the object. For example, adding salt to soda causes it to foam up because thousands of little bubbles form on the surface of each grain of salt. This bubbling process is called **nucleation**, and the places where the bubbles form, whether on the sides of the can, on an object, or around a tiny grain of salt, are the nucleation sites.

The surface of a Mentos is sprayed with over 40 microscopic layers of liquid sugar. That makes it not only sweet but also covered with lots and lots of nucleation sites.

In other words, there are so many microscopic nooks and crannies on the surface of a Mentos that an incredible number of bubbles will form around the Mentos when you drop it into a bottle of soda.

|  |  |
| --- | --- |
| **Materials** | **Procedure** |
| * Diet Coke * Mentos mint candy * Paper * Tape * Card | 1. Construct a tube to contain your mentos with a piece of paper and tape. Make sure it is big enough to fit the mentos but only so big that they have to stack on top of one another. 2. Slowly and carefully open a new bottle of Diet Coke (flat surface, outdoors) 3. Put 6-10 mentos in your tube and keep them from falling out by placing a playing card on the bottom 4. Put the card end of your tube of Mentos on the card and place it directly over the opening of the soda bottle. 5. When you are ready, remove the card and let all the Mentos drop into the soda at once and quickly move out of the way. |

**Other questions to explore:**

What happens if you use crushed Mentos?

What happens if you use a different number of Mentos?

What happens if you use different types of soda?