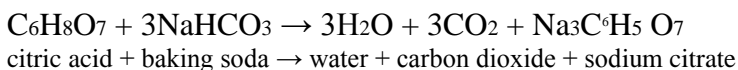


## Alka-Seltzer Background

### Why does Alka-Seltzer fizz when it is dropped in water?

The fizzing that is seen when an Alka-Seltzer tablet is dropped in water is the same sort of fizzing that can be seen when baking soda is mixed with vinegar. If the ingredients for Alka-Seltzer are examined it is found that the tablets contain solid forms of citric acid (vinegar) and sodium bicarbonate (baking soda). When a tablet is dropped in water the water dissolves the solid form of the acid and the baking soda allowing them to mix and react. The result is a reaction that produces carbon dioxide gas (CO<sub>2</sub>).

The chemical equation for this reaction is as follows:



Sodium bicarbonate (NaHCO<sub>3</sub>) is a white solid that is crystalline, but often appears as a fine powder. Its density is 2.16g/cm<sup>3</sup> and it has a melting point of approximately 50°C.

### Factors that effect the rates of chemical reactions:

It is helpful to predict whether an action will affect the rate at which a chemical reaction proceeds. There are several factors that can influence the rate of a chemical reaction.

**Concentration of reactants:** Concentration means a higher amount of the reactants, or more simply put-more of the stuff that is causing the chemical reaction. If there are more reactants, there are more particles to collide with, or bump into each other, which will make the reaction go faster.

**Temperature:** Usually, an increase in temperature is accompanied by an increase in the reaction rate. An increase in temperature causes the molecules to move faster, which will cause the reaction to happen faster.

**Environment:** The kind of solution the reaction takes place in can affect the rate of reaction. Many reactions happen faster in a liquid, rather than in a solid or a gas.

### Uses of Alka-Seltzer:

Used as an antacid to relieve indigestion, or an upset stomach.

Soothes insect bites.

Unclogs drains.

Cleans many house hold items, such as vases, jewelry, and removes burned-on grease from pots and pans.