

Name _____



Bubbles or No Bubbles?

Have you ever mixed baking soda and vinegar? If you have, you probably saw bubbles right away! This fizzy reaction happens because of a chemical change. But what if you mix salt and pepper? Nothing happens! That's because mixing salt and pepper is just a physical change.

A chemical change happens when two substances combine and form something new. In the case of baking soda and vinegar, they react to create carbon dioxide gas. That's what causes all the fizz and bubbles. The gas wasn't there before—it's a brand-new substance that forms during the reaction. Chemical changes often give off heat, make bubbles, change color, or even smell different.

Now let's talk about salt and pepper. If you put them together in a bowl and stir, they don't change into something new. They still look the same. You can even separate them again. That's a clue that no chemical change happened. Salt is still salt, and pepper is still pepper.

This is called a physical change. Physical changes happen when things are mixed or changed in a way that doesn't make something new. Cutting paper or melting ice are other examples. You can't un-bake a cake, but you can take salt out of pepper if you're careful.

So why does mixing baking soda and vinegar work so differently? It's all about their ingredients. Baking soda is a base, and vinegar is an acid. When bases and acids meet, they often react in exciting ways. Salt and pepper are just tiny pieces of solid material. They don't have the kind of energy or structure needed to cause a chemical reaction.

In science, knowing the difference between a chemical and physical change helps us understand how the world works. Whether you're cleaning your room or baking cookies, changes are happening all around you!