

Name _____

How Can You Tell If a Chemical Reaction Has Occurred?

Open-Ended Response Answer Key

1. When two clear liquids change color, it suggests that new molecules with different colors have formed due to a chemical reaction. For instance, when you mix iodine solution with starch solution, it changes from brown to dark blue.
2. Bubbles form when vinegar (acetic acid) reacts with baking soda (sodium bicarbonate), producing carbon dioxide gas and water. The chemical equation is: $\text{CH}_3\text{COOH} + \text{NaHCO}_3 \rightarrow \text{CO}_2 + \text{H}_2\text{O} + \text{NaCH}_3\text{COO}$.
3. Chemiluminescence can be encountered in glow sticks, where a chemical reaction between two substances inside the stick produces light. The reaction involves the oxidation of a dye molecule by a chemical called hydrogen peroxide.
4. It's important for scientists and researchers to recognize the signs of a chemical reaction to understand and control experiments, develop new materials, and make informed decisions in various fields, including medicine, environmental science, and industry.

