

Name _____

Acids: Unveiling Their Characteristics and More

Open-Ended Response Answer Key

1. The pH scale measures the concentration of hydrogen ions (H^+) in a solution. A lower pH indicates a higher concentration of H^+ ions, signifying a stronger acid. This means that strong acids have a higher degree of ionization and can release more H^+ ions, making them more acidic. The implications of this lower pH include a sour taste, corrosiveness, and a greater ability to react with other substances, such as metals.
2. In a taste test comparing lemon juice and vinegar, set up two stations with small, labeled cups containing lemon juice and vinegar. Participants should taste each and rate the sourness on a scale from 1 to 10, with 10 being the most sour. Expected observations may include differences in perceived sourness, with vinegar likely rated as more sour due to its higher acetic acid content.
3. Acids like vinegar are used in pickling to preserve vegetables by creating an acidic environment that inhibits the growth of spoilage microorganisms. The acid lowers the pH of the solution, making it inhospitable for bacteria and molds. This process, known as acidification, helps extend the shelf life of pickled foods.
4. Safety precautions when working with corrosive acids in industrial settings are crucial. Measures should include providing workers with protective gear like gloves and goggles, ensuring proper ventilation, using insulated equipment to prevent electric shock, and conducting regular safety audits. Workers should be trained in handling these substances and have access to emergency response procedures in case of accidents. Proper storage and disposal procedures are also essential to minimize risks to workers and the environment.

