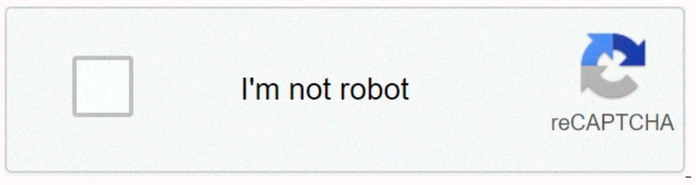

Continue

Titration lab answers

Vinegar is a common household item containing acetic acid as well as some other chemicals. This experiment is designed to determine the concentration of vinegar in the vinegar sample by titration with a naoh standard solution. Can we help you with your assignment? Let us do your homework. Professional writers are available in all areas and meet the task deadline. Includes free proofreading and copy-editing. CH3COOH(aq) + NaOH(aq) -> CH3COONa(aq) + H2O(l) Sodium hydroxide, which is a basic solution for ectaic acid, which is an acidic solution, has a neutralising reaction. An indicator known as phenolfthalein, is also added to the vinegar. This indicator turns the solution dark pink when excess NaOH is added to make the solution more basic. Thus, when the solution turns light pink, this indicates that it has been successfully neutralized. The amount of NaOH used to standardize vinegar can then be used to determine the amount of vinegar in vinegar, as both are shown in a ratio of 1:1 in the equation above. Thus, the moles of NaOH used to neutralise the acid must be the same as the number of vinegar mecms present in vinegar present in vinegar. Purpose The purpose of this test is to experimentally determine the molar concentration of acetic acid in acetic acid. Hypothesis Molar concentration of acetic acid in a 100 ml acetic sample 0,883mol/l (calculations below) Suction pump of the apparatus 250ml Erlenmeyer flasks Beaker Retost stand 100mlvolumetric Flask electronic balance burette 10ml Volumetric Pipette Funnel Burette Clamp Materials Vinegar Sodium hydroxide oxylic acid indication procedure determines the approximate molar concentration of vinegar on the bottle. The density of ectaic acid is 1,06 g/mL. Prepare 100 ml of sodium hydroxide solution with an appropriate molar concentration, using its calculations. (calculations on page 3) The sodium hydroxide is missukated by titration of 0,50 M-oxalic acid solution from three 10 ml solutions. Picture 1: Set up the device during titration. After the standard, titration three 10 ml of vinegar samples using the sodium hydroxide solution. Clean up the lab solution. Observations Titration with Sodium Hydroxide and Oxalic Acid Test # Amount of NaOH used to standardize CH3COOH 1 10,40ml test (±0,05 ml) 2 10,20 mL (±0,05 mL) 3 10,25 mL (±0,05 m Constants 10mL (±0,01 mL) oxalic acid used in all studies 3 drops for each test indicator was used Air pressure = 103.28 (±0.005kPa) Temperature = 22.5oC (±0.05 oC) All three studies were successful as the solutions turned light pink. Titration with sodium hydroxide and vinegar Test # Amount of NaOH used to standardize vinegar 1 8,80 ml (±0,05 ml) Test 2 8,60 ml (±0,05 ml) Test 3 8,70ml (±0.05 ml) Constants 10 mL (±0.01mL) vinegar used in each study 3 drops indicator was used in each test air pressure = 103.28 (±0.005kPa) Temperature = 22.5oC (±0.05 oC) All three studies were successful as the solutions turned light pink. Calculations and data processing analysis The purpose of this study was to determine the molar concentration of vinegar in vinegar. This experiment showed that the concentration of ectaic acid was 0.44mol/l (±3.87%). However, the exact value of acetic acid present in the 100 mL acetic sample is 0,883mol/l. The 50% error in this lab can account for errors through the experiment procedure. The reaction that occurred during the experiment neutralizing reactions, which means that moles of acid equal to the moles base at the end of the experiment. This factor was used to calculate the molar concentration of ectaic acid by applying the molar concentration = concentration x to the volume formula. This series of calculations has also contributed to the uncertainty associated with the final response, as each step approximately doubles the uncertainty of % In regards to the errors that affected the results of this experiment, many of them contributed to the overall 50% error. One of the main factors influencing the results of the experiment was the strength of sodium and sodium hydroxide. If any of these materials remain open in the atmosphere, they will begin to lose their power. During the experiment, sodium and sodium hydroxide were left open for some time to interact with the environment. Thus, the final answer did not correspond exactly to the theoretical value, because the force was weakened, which means that the numbers used to calculate the molar concentration were not as accurate. In order to ensure that this error does not affect the results of the experiment, it is necessary to try to keep sodium and sodium hydroxide in a closed environment at all times, thereby limiting the time of its interaction with the atmosphere. READ: Pearl S. Wang The Good Earth Summary & Analysis In addition, the equipment used may have contributed to the fault, as there is uncertainty associated with all devices. These uncertainties are then applied to the calculations in order to maintain the degree of uncertainty about the quantity of material used. This 3.± 87% of all trials. This value includes both uncertainties about the uncertainties applied to the preparation of solutions (e.g. uncertainty of the mass balance used to measure the amount of sodium needed to make sodium hydroxide) and the transfer of the solution from one device to another. These uncertainties can be reduced by using more accurate equipment, such as a more accurate mass balance. Limiting the transfer of the solution from one container to another also reduces the amount of error. Human judgment also explains some of the errors in the experiment, as the person conducting the experiment had to read a number of measurements from the pipette and the bureau. This error can be reduced by ensuring that readings are always made at eye level and that the same person who takes the readings is constant, as the judgment varies for each person. In summary, this experiment found that the molar concentration of vinegar in vinegar was 0.44mol/l. However, this value was 50% inaccurate due to errors in the investigations. The purpose of this study was to determine the molar concentration of acetic acid in vinegar. This experiment showed that the concentration of ectaic acid was 0.44mol/l (±3.87%). However, the exact value of acetic acid present in the 100 mL acetic sample is 0,883mol/l. The 50% error in this lab can account for errors through the experiment procedure. The reaction that occurred during the experiment neutralizing reactions, which means that moles of acid equal to the moles base at the end of the experiment. This factor was used to calculate the molar concentration of ectaic acid by applying the molar concentration = concentration x to the volume formula. This series of calculations has also contributed to the uncertainty associated with the final response, as each step approximately doubles the uncertainty of % Errors In regards to errors that have affected the results o f this experiment, many of them have contributed to the overall 50% error. One of the main factors influencing the results of the experiment was the strength of sodium and sodium hydroxide. If any of these materials remain open in the atmosphere, they will begin to lose their power. During the experiment, sodium and sodium hydroxide were left open for some time to interact with the environment. Thus, the final answer did not correspond exactly to the theoretical value, because the force was weakened, which means that the numbers used to calculate the molar concentration were not as accurate. In order not to affect the results of the experiment, it is necessary to try to keep sodium and sodium hydroxide in a closed environment at all times, thereby limiting the time, with the atmosphere. In addition, the equipment used may have contributed to the fault, as there is uncertainty attached to all devices. These uncertainties are then applied to the calculations in order to maintain the degree of uncertainty about the quantity of material used. This uncertainty was increased by 3.87% for ±. This value includes both uncertainties about the uncertainties applied to the preparation of solutions (e.g. uncertainty of the mass balance used to measure the amount of sodium needed to make sodium hydroxide) and the transfer of the solution from one device to another. These uncertainties can be reduced by using more accurate equipment, such as a more accurate mass balance. Limiting the transfer of the solution from one container to another also reduces the amount of error. Human judgment also explains some of the errors in the experiment, as the person conducting the experiment had to read a number of measurements from the pipette and the bureau. This error can be reduced by ensuring that readings are always made at eye level and that the same person who takes the readings is constant, as the judgment varies for each person. Conclusion In summary, this experiment found that the molar concentration of vinegar in vinegar is 0.44mol/l. However, this value was 50% inaccurate due to errors in the investigations. Tests.