Acids and alkalis lab report

Environment, Water

Lab Report Acids and Alkalis: Chemistry of Neutralization and Salt Formation Introduction: An acid is a group of chemicals. Acids are positively charged ions, they are liquid and are solutions of pure compounds in water. If you want to know if something is an acid, you can test it by using litmus paper. Acids will turn litmus paper red, whilst alkalis will turn it blue. Alkalis are negatively charged ions and are usually solid. Aim: To find out how much of different acids is needed to neutralize 25mls of sodium hydroxide solution (NaOH). Hypothesis: The strongest alkali will need the smallest amount of an acid to cancel out and the weakest will need more acid. Variables: Control | Independent | Dependent | The indicator, NaOH | H2SO4 HClHNO3 | The chemical reaction between the acids and alkali. | Materials / Apparatus: * H2SO4 * HCL * HNO3 * Alkali (NaOH) * Stand * Burette * Beaker * Funnel * Bunsen Burner * Crucible * Phenolphyalein Method: 1. Pour the 25 ml of NaOH into a beaker. 2. Drop three drops of phenolphyalein into the beaker. 3. The solution will now turn pink. 4. Through a funnel, pour the acid into the burette. 5. Start dripping a few drops one by one into the beaker. 6. The solution will start getting a lighter shade of pink. 7. Stir the beaker around. 8. Once the solution turns clear, stop adding more acid. 9. Calculate the amount of acid used. 10. Take the solution and pour a bit of it into a crucible. 11. Light the Bunsen burner. 12. The salt solution will turn into salt crystals when it is heated. NaOH + HCl = NaCl + H2O NaOH + HNO3 = NaNO3 NaOH + H2SO4 = Na2SO4 + 2H2O Observations: Alkali | Acid | Moles | Observation | NaOH | HCL | 1 Mole | Took 4 ml to neutralize. No further experiment was made. | NaOH | HCL | 0. 1 Mole | Took 31 ml to neutralize. 2. 30 minutes until pink salt crystals were formed. | NaOH | HNO3 | 1 Mole | Took 19. 2 ml to

neutralize. 2 minutes until good white salt crystals were formed. | NaOH | H2SO4 | 2 Moles | Took 1. 1 ml to neutralize. 2. 15 minutes until rings of white salt were formed. | Analysis: The weakest acid (HCl 0. 1 Mole) needed the most alkali to be made into salt and the strongest (H2SO4 2 Moles) needed the least. Different experiments made different salts. Conclusion: The strongest acid will work faster and you will need less. This is because it is a lot more reactive than the weaker acids and it will want to react much faster with the alkali. Evaluation: In my group, Zuzanna and I were the ones doing the experiment while everyone else observed and took notes on what happened. The first time, we dropped one too many drops of H2SO4 in the alkali so the alkali quickly turned pink again. We had to try it six times before we could get it right because we kept putting too much in or we would forget how much we put in. But after a few tries we finally got it to work and we got the correct solution. Therefore we could finally go on to the next step and heat up the solution. It took our salt around 2 minutes and 15 seconds to heat up, evaporate and leave us with small rings of white salt crystals. Our salt crystals did not turn out as the best, but they were successful.