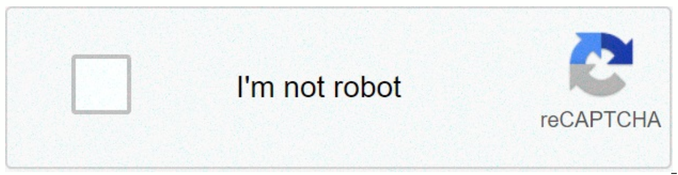

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Preparation of sodium thiosulfate lab report

Synthesis and Analysis of Sodium Thiosulphate laboratory chem 2145 Performed by: Kayla FalconeDate review: 19 September, 2013 & 26 September, 2013Date Submitted: October 3, 2013Abstract: Sulphur and sodium sulphite sodium thiosulfate, Na2S2O3 5H2O sample preparation was a restrictive reactor sodium sulphite, Na2SO3 and theoretical yield of 17,83 g Na2S2O3 5H2O. The percentage of sodium thiosulphate production was 43.56%, which meant that the product disappeared. When Na2S2O3 was combined with HCl, it produced a mild reaction with discoloration and released sulphur dioxide gas. The purity of the sodium thiosulphate sample was determined by triodid and starch in the titrations. The calculated theoretical molar concentration was 5,699x10-2mol/l and the actual molar concentration was 6,527x10-2mol/l. Due to higher actual concentrations than expected, the percentage of purity of Na2S2O3 (114.5%) was greater than 100%. The Na2S2O3 sample was not clean. Introduction: The purpose of this test was to form a pure sodium thiosulphate sample. This product is based on the reaction between sodium sulphite and sulphur powder. The balanced chemical equation for this reaction is the TAd preparing the solution approximately 0,025XX M Na2S2O3 as follows: Mass field mass6,205 g Na2S2O3. 5H2O and dissolve in 800 ml of hot distilled water.13 To slow the degradation of the bacterium, add 1,5 ml of 6N NaOH and dilute the solution to 1 litre in a volumetric flask. The solution bottle should be closed and closed immediately. Store the solution in a refrigerator until ready for use. Mix the diluted sodium thiosulphate solution very thoroughly by shaking it repeatedly repeatedly each time the solution is used.14 TA distributes a dry weight bottle to each student, containing approximately 0,1 grams of potassium bit-iodate CLASS KH(IO3)2, previously dried in a 103-105 0 C oven for 1,5 hours or overnight.16 At the beginning of the laboratory, each student should remove the weighing bottle from the oven and have it cooled in a small desiccator loaded with calcium chloride. Leave the cap off the weight bottle until the desikator is opened for the first time after cooling KH(IO3)2. Observe the precautions related to the methods set out in Section 6 of the Manual of Methods. 0,0021 M for the standard solution of potassiumbi-iodate: 0,0818 g of dry KH(IO3)2 weighing bottle, preheated for at least 1,5 hours and now chilled in the desiccant with 50 ml of warm distilled water17 and diluted to 100 ml in a flask. The solution is warm and can be titrated warmly. Evaluate all the scales ±0.1 mg (0.0001 g) and save all the data immediately to give you a lab laptop. Dissolve 0,5 g of soluble starch and 0,05 g of salicylic acid preservative18 a couple of ml of distilled water to make the paste and dissolve in 25 ml of hot distilled water. The starch solution should be prepared fresh on the day you plan to use it. Keep it warm hot plate & add hot to your solution. For standardisation titration: Take 100 ml of freshly mixed thiosulphaprome 0.025XX M and pour it into a beaker and mix and mix well. The stock solution must be mixed several times before pulling away 100 ml. Sodium thiosulphate solutions have a tendency to come apart while sitting over time and are described as perishable. To clean the burette, obtain a 50 ml burette and use a ml of thiosulphate solution. Then fill the burette with freshly mixed thiosulphate solution, allowing it to slowly let the sides down to prevent bubbles from forming inside the burette. If you don't get a bubble, tap the burette lightly on the lab bench or flick the burette finger to drive the bubbles to the surface. Make sure that the end of the burette is filled with thiosulphate solution, not air. Prepare three separate 250 ml Erlenmeyer flasks for standardisation titration. Before each titration begins19 add 2,0 g of potassium iodide (KI) to 100 ml of distilled water and then add a few drops of concentrated sulphuric acid (DO NOT ADD SULPHURIC ACID DIRECTLY TO KI BECAUSE I2 (g) would escape). Pipette out and add 25,0 ml of warm potassium iod solution, then add 75 ml of distilled water with a total volume of approximately 200 ml. Start titration immediately and titrate the released iodine in each flask with thiosulphate ink, stirring continuously. When the solution turns pale yellow, add 1,0 ml of freshly prepared hot waterstarch solution (15-20 drops), which will change the color of the solution from pale yellow to blue.20 Continue titration until the colour becomes blue. The volume of thiosulphae used in the bureti shall be recorded. If you leave any changes back to the blue color after the endpoint has been reached.21 Repeat the titration with the additional samples. Volumes should be agreed within 5%. Each time you fill the burette with fresh solution, rinse the burette 3 times with 2 ml of new solution. Each wash should be disposed of in a suitable waste container. Tilt the burette so that the entire inner surface of the burette can come into contact with the liquid. After rinsing the burette, fill it with Na2S2O3 solution. Eject the air bubbles that are stuck below the tap by opening the stop tap completely for a second or two. If this fails, read more tips on your help. Titration can take place quickly at the beginning, but the endpoint needs to be carefully addressed. The endpoint shall be sharp and easily positioned within a fraction of the drop. The final point shall be taken as the first colourless solution, which shall last for 10 seconds or more after thorough mixing. The color is not permanent and may fade back to blue protocol that should be ignored. Make all burette readings, estimating the nearest 0.01 ml, allowing time for drainage. The tendency of liquids to stick to the walls of the burette can be reduced by emptying the burette gradually. The slow-drained burette gives the results greater reproducibility. Run a sufficient number of titrations to ensure accurate and presumably accurate standardisation. Record the final buret readings for each test and subtract the burette from the initial readings to quantify the amount of thiosulphate used in ml. Standardisation titration should be repeated within 5%. The balanced equations for standardisation reactions are:\[\rm KH(IO_3)_{2\space\space (aq)} + 10 KI_{(aq)} + 6 H_2SO_{4 \space\space (aq)} \rightarrow 6 I_{2\space\space (aq)} + 6 H_2O_{(l)} + 5 K_2SO_ {4 \space\space (aq)} + KHSO_{4 \space\space (aq)}\] \[\rm 6 I_{2 \space\space (aq)} + 12 S_2O_3^{2-} \rightarrow 12 I^- + 6 S_4O_6^{2-}\] Equations , you now have reactions to stochiometry and now you should be able to calculate the molarity of the thiosulphate solution. If the three titrations do not provide the desired accuracy, additional titrations are required. With laptop pages turned at the end of the day, add a table that provides calculated molarity na2S2O3 for each titration, calculate average, standard deviation and 95% confidence limits average. No error is required for thiosulphate standard calculations. Before leaving the laboratory for a day, record the calculated molarity of each titration. TAs average the results of the entire team and provide each team with a team average. Score.