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Solutions Needed

Result Calculations

1. Determine the average volume of potassium thiocyanate used from your concordant titres.
2. Calculate the moles of potassium thiocyanate used.
3. Use the equation of the reaction between silver ions and thiocyanate ions

   $$Ag^{+}_{(aq)} + SCN^{-(}_{aq)} \rightarrow AgSCN_{(s)}$$

   to calculate the moles of unreacted silver nitrate in 100 mL of cheese extract, and multiply the figure by five to determine the total moles of unreacted silver nitrate (the excess) in the 500 mL volumetric flask.
4. Calculate the moles of silver nitrate in the 50 mL of solution that was added during the sample preparation to the cheese.
5. Calculate the total moles of silver nitrate that reacted with the salt from the cheese by subtracting the moles of unreacted silver nitrate (the excess) from the total moles of silver nitrate added to the cheese.
6. Use the equation of the reaction between the silver ions and the chloride ions to calculate the moles of sodium chloride in the sample of cheese.

   $$Ag^{+}_{(aq)} + Cl^{-}_{(aq)} \rightarrow AgCl_{(s)}$$

7. Calculate the concentration of sodium chloride in the cheese as grams of salt per 100 g cheese (% salt).

Additional Notes

1. Residues containing silver ions and precipitate are usually saved for later recovery of silver metal. Check this with your teacher or the laboratory supervisor.
2. A ‘blank’ titration substituting sucrose (sugar) for the cheese should be carried out to see if there are any ‘contaminating’ chloride ions present in the reagent solutions used. If any are found, the figure should be subtracted from the titration results.
3. For greatest accuracy it is a good idea to standardise your thiocyanate solution by titrating several samples against your standardised silver nitrate solution (once again using ferric ammonium sulfate indicator). The concentration of SCN^{-} determined by this titration should then be used in all calculations.

Contact Us

If you have any questions or comments relating to this experiment, please contact us. Please note that this service is for senior school chemistry students in New Zealand only. We regret we are unable to respond to queries from overseas.

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