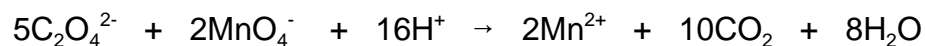


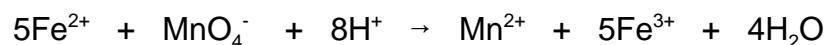
Exercises for Volumetric Analysis

1. What is the difference between an end point and the equivalence point in a titration?
2. What is a primary standard?
3. What is the difference between a direct titration and a back titration?
4. What effect will the deionized water used to deliver a partial drop from a buret tip have on the end point volume of a titration?
5. A 0.3147-g sample of primary standard grade $\text{Na}_2\text{C}_2\text{O}_4$ was dissolved in dilute H_2SO_4 and titrated with a solution of KMnO_4 . The end point was observed after addition of 31.67 mL of the titrant.



- a) Calculate the molarity of the KMnO_4 solution.

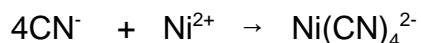
The iron in a 0.6656-g ore sample in acidic solution was then reduced quantitatively to Fe^{2+} and titrated with 26.75 mL of the standard KMnO_4 titrant solution.



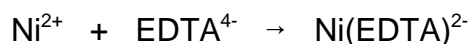
- b) Calculate the mass percent Fe_2O_3 in the sample.

Exercises for Volumetric Analysis

6. A cyanide solution with a volume of 12.73 mL was treated with 25.00 mL of Ni^{2+} solution (containing excess Ni^{2+}) to convert the cyanide into tetracyanonickelate(II).



The excess Ni^{2+} was then titrated with 10.15 mL of 0.01307 M ethylenediaminetetraacetic acid (EDTA).



The $\text{Ni}(\text{CN})_4^{2-}$ does not react with the EDTA. If 39.35 mL of the EDTA solution were required to react with 30.10 mL of the original Ni^{2+} solution, what is the molarity of CN^- in the 12.73-mL cyanide solution?

Solutions for Volumetric Analysis Exercises