

Friday Worksheet

Name:

Gravimetric 3

Problem 1

A 1.1105 g sample of bauxite (the primary ore of aluminium) was analysed for aluminium. The sample was pulverized and dissolved in concentrated nitric acid. The HNO_3 was removed by evaporation and solids dissolved in hot water with a very small quantity of nitric acid added. Insoluble solids were removed by gravity filtration. The solution was made basic by the slow addition of dilute NH_3 at which point a gelatinous solid precipitated ($\text{Al}(\text{OH})_3$ and $\text{Al}_2\text{O}_3 \cdot x\text{H}_2\text{O}$). The precipitate was heated to coagulate it as much as possible then filtered over "fast" filter paper. The paper and solids were placed in a porcelain crucible and the paper ashed and precipitate "ignited" at 600°C to convert the precipitate to pure Al_2O_3 . The mass of Al_2O_3 isolated was 0.3605 g. The average mass of ash remaining after charring 10 sheets of the identical filter paper was 0.0006 g. What is the percentage aluminium in the bauxite ore?

A more challenging problem ...

Problem 2

A 0.8870 g sample containing only NaCl and KCl was treated with AgNO_3 . The AgCl formed had a mass of 1.913 g. Calculate the %Na and %K in the sample.