

CHAPTER V

CONCLUSION



Fairly complete separation of zirconium from zircon was obtained by alkali fusion. The sand of minus 60 mesh was mixed with sodium hydroxide in a ratio of 1 to 6. The mixture was dehydrated at 300°C for 1 hour and fused at 700°C for 1 hour. The cake was dissolved in concentrated hydrochloric acid ten times its weights and zirconium was precipitated as zirconyl chloride octahydrate with a yield of about 90 per cent.

The purification of zirconium was performed by solvent extraction using 60 per cent TBP in kerosene. A recovery yield of 70 per cent was obtained by a single extraction, two scrubbing and one stripping stages. Precipitation was achieved by adjusting the pH of the solution to 4.5 by adding ammonia solution. Zirconium oxide was obtained by ignition of the hydroxide at 400°C . A total yield of 60 per cent was obtained. The purity of the zirconium oxide was found to be 95 per cent.