

# ACIDULATION STUDIES ON EPPAWALA APATITE

## Part II

### PRECIPITATION OF DICALCIUM PHOSPHATE FROM ACIDIC PHOSPHATE SOLUTION

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In a process described by the authors in part I of this work, apatite was acidulated and dicalcium phosphate was precipitated from the resultant slurry. This precipitation is pH dependent and tricalcium phosphate may precipitate at high pH values. Thus the above precipitation reaction has been investigated with the view of determining the optimum conditions for the precipitation of dicalcium phosphate.

By potentiometric and pH titrations it was established that the precipitation of dicalcium phosphate occurred in the pH range of 4.6 - 12. The weight, the 2% citric acid solubility of the precipitated products and the phosphate content of the filtrates were studied at different precipitation pH values. The 2% citric acid solubilities were determined by a method suggested by Amarasiri and Ambepitiya (1).

The results showed that the precipitation of dicalcium phosphate began around pH 5 and was completed around pH 7. Beyond pH 7, however, a slow transformation of dicalcium phosphate to the tricalcium form occurs as indicated by the decrease in citric acid solubility of the product. Thus it was concluded that the maximum precipitation of dicalcium phosphate from acidic apatite solution can be achieved in the pH range of 6 - 7.

#### References\*

- (1) Amarasiri, S. L. and Ambepitiya, V.H.; Evaluation of Eppawala apatite by chemical analysis. S. L. A. A. S. annual sessions, 1976.

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